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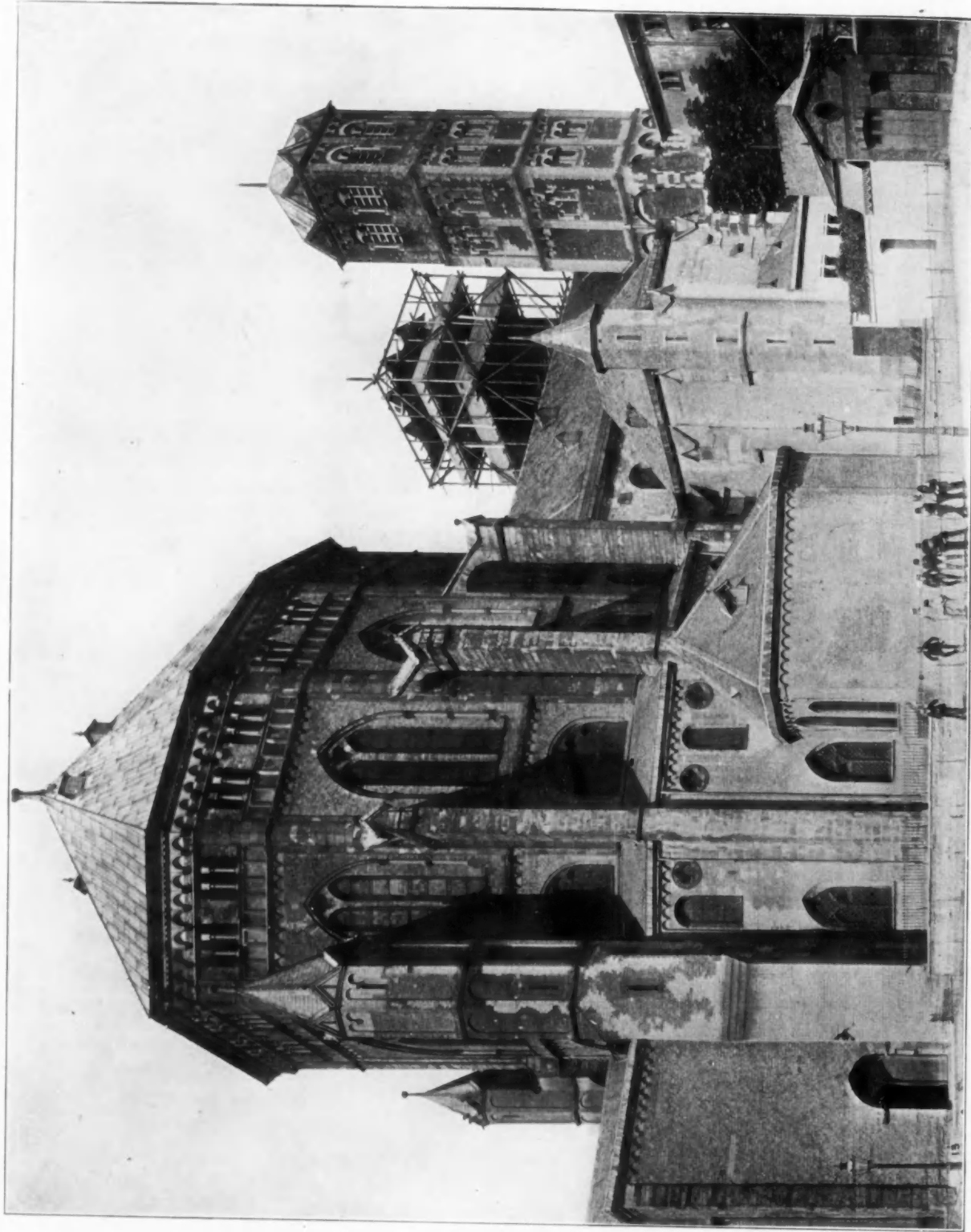
FROM PHOTOGRAPHS OF HOUSES

AND PLANS,

REPRESENTATIVE OF THE BEST OF RECENT WORK

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CHURCH OF ST. GEREON, COLOGNE, GERMANY.

THE BRICKBUILDER

VOL. 17 NO. 9 DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY SEPTEMBER 1908

Sanatoria for Consumptives.

BY T. MACLAREN.

THE trend of medical opinion, as to how the cure of tuberculosis can best be furthered, will necessarily be the chief factor in the development of the best type or types of sanatoria plans. The requirements of various classes, and of invalids at the various stages of the disease call for special consideration, but hitherto sanatoria planned on hotel or hospital lines have largely prevailed, regardless of these considerations.

Dr. E. L. Trudeau remarks that, "wards and pavilions, for many reasons, are much more practical in dealing with the lower and less sensitive class of patients, but for the middle classes and for people of refinement who object to being put in wards or pavilions, and who require a certain amount of privacy, the cottage plan is the ideal one." For working-class patients it is claimed by others that their best interests may be most wisely met in simple and inexpensive colonies on the tent or cottage system, according to climatic or other considerations.

Sir William Broadbent, Dr. R. W. Philip and Dr. Charles Reinhart have stated, in a general way, that the best and most effective way of dealing with pulmonary tuberculosis is by a sanatorium arranged on a system of detached sleeping huts or chalets, and in this connection the *London Builder* of December 5, 1903, remarks: "The interesting point for architects to note is that at length weighty medical opinion is pronouncing in favor of a system, which is the antithesis of the German hotel-like sanatoria, and the great hospital structures which have been, and unfortunately still are, being built all over England, and it is essential that the greatest care should be exercised in planning them on the most economical and effective lines."

The author of the third premiated design in the competition for the King Edward Sanatorium at Midhurst, England, in his report, expressed himself thus: "The ideal sanatorium consists of a series of isolated huts, with windows on all four sides, but for a sanatorium of one hundred beds the difficulties of heating, of

carrying meals, and of supervision over so large an area, render the scheme impossible, with due regard to economy."

That there should be professional prejudice, both architectural and medical, in favor of "hospital lines" is natural. It has often been stated that separate cottages are cheaper; unless the character of construction of the cottages is inferior, in which case maintenance is costly.

the provision of proper lavatory accommodations, heating, etc., may warrant a doubt on this point, but it can scarcely be denied that this arrangement tends to increase working expenses, and renders supervision more difficult.

To devise the ideal sanatorium plan in accordance with medical and constructional requirements is the problem confronting architects, who will necessarily be guided by medical opinion on two points: first, the most effective methods of combating the disease; and second, the best methods of housing both the various classes of people, and patients at different stages of the disease.

It may be that the future will develop sanatoria, consisting of a portion on hospital lines, for those seriously ill and in need of special care, and the other portion on the cottage or isolated hut or tent plan, for the patients in incipient stages.

The unanimity of medical opinion on one point, viz.: the effectiveness of the open air treatment for the cure of tuberculosis has compelled in recent attempts at plans on hospital lines the insertion of sleeping porches as the starting point of such plans, and it is

necessarily the starting point in planning the cottage unit in the other system. Climatic conditions in certain localities would probably necessitate the connection of cottages by a covered way to the central administrative building.

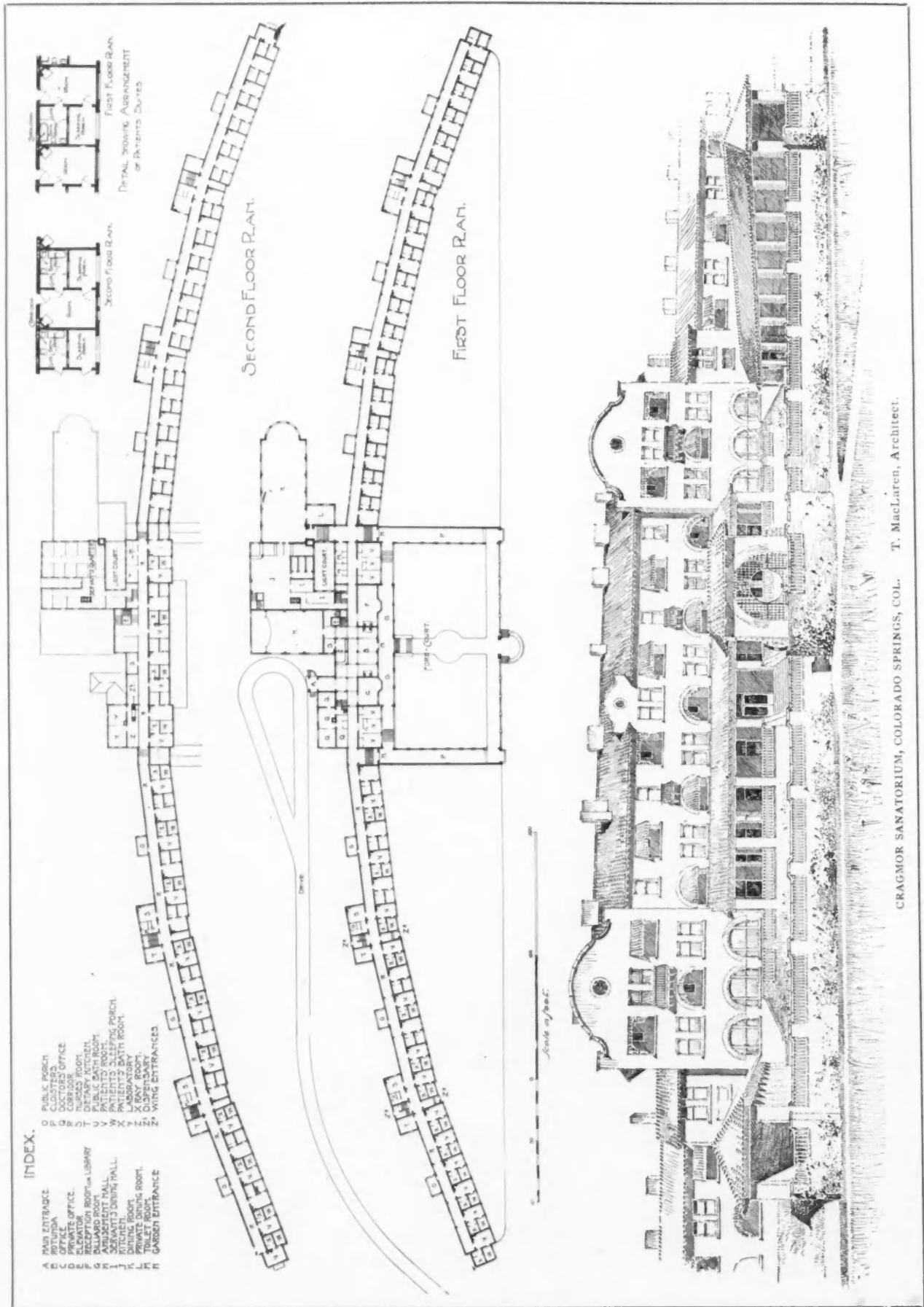
Galton in his work, "Healthy Hospitals," remarks: "Second only to air, are light and sunshine essential for growth and health, and they are Nature's most



COTTAGE, CRAGMOR SANATORIUM, COLORADO SPRINGS, COL.
MacLaren & Thomas, Architects.



TYPICAL FLOOR PLAN.
COTTAGE, CRAGMOR SANATORIUM.



powerful assistants in enabling the body to throw off those conditions which we call disease. Not only daylight but sunlight; indeed, fresh, pure air must be sun warmed, sun-penetrated air."

The ideal way to obtain these conditions would appear to be a tent, well ventilated and provided with windows for the direct admission of sunlight, and the canvas would permit of perfect penetration of light. While a tent, pure and simple, can be safely used by an individual and set alongside a residence, as is so often done, the problem of using groups of tents as part of a sanatorium is more difficult, owing to fire risks. In some instances, tents with roofs of permanent material have been used with very considerable success, and they have the advantage of being economical, and the more temporary parts, the canvas sides, can be easily and cheaply renewed. The difficulties to be overcome in a sanatorium composed of tents, however, are lavatory conveniences, heating and administration.

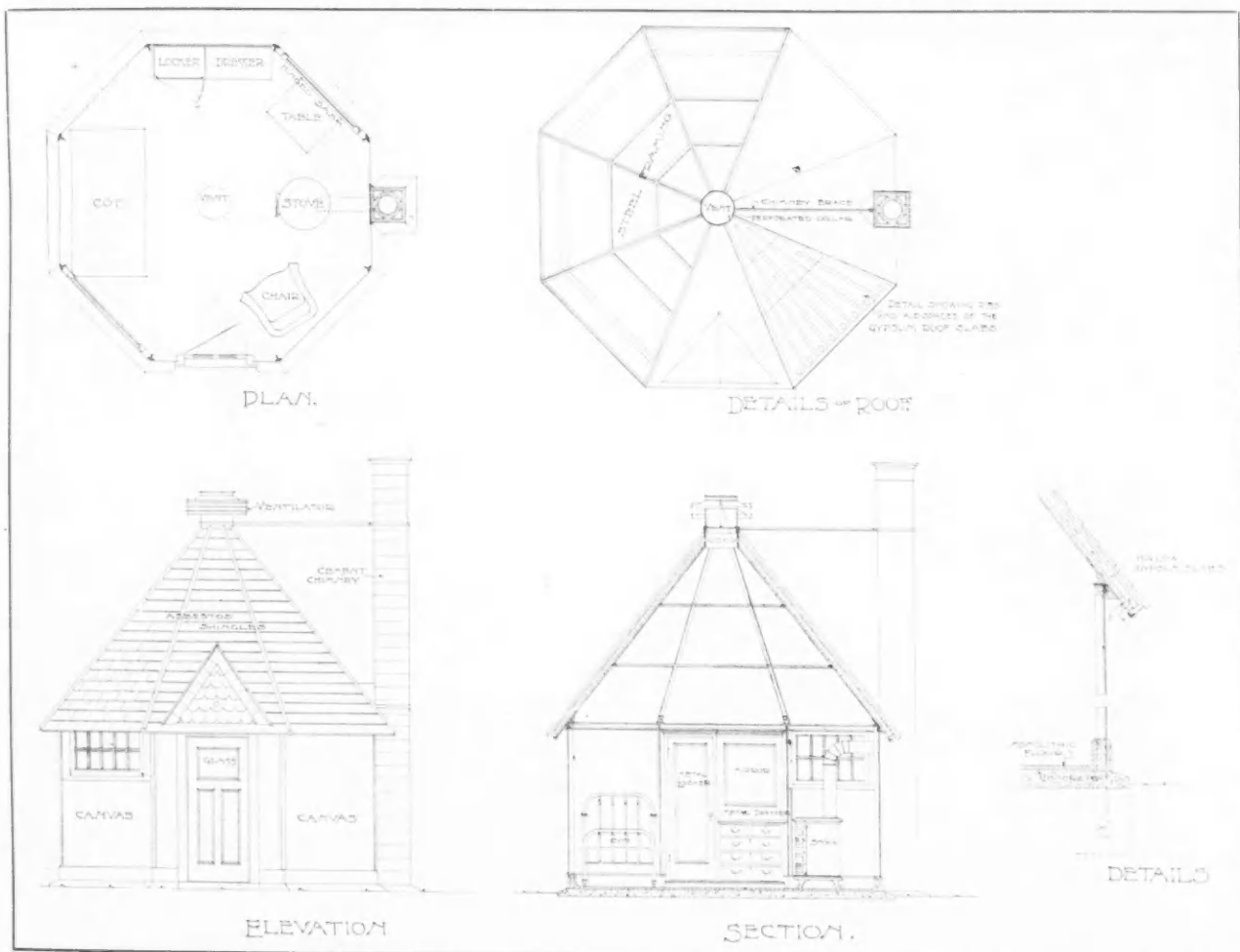


NORDRACH RANCH SANATORIUM, COLORADO SPRINGS.

Most sanatoria hitherto built have been placed in a haphazard fashion as regards the obtaining of the maximum of sunshine in the rooms. In a paper on "The Orientation of Buildings and of Streets in Relation to Sunlight," by William Atkinson, architect, Boston, he gives diagrams showing the proportions of sunshine entering rooms facing the different points of the compass, at the periods of March and September, with

the following results: to the N. E. and N. W. 17-37, to east and west 81-63, to the south 80-56 and to the S. E. and S. W. 104-68. While considerations such as the contour of a particular site, or shelter, or the avoidance of cold winds in special localities, have influenced the placing of a building, the fact of the greater proportion of sunshine from the southeast or southwest does not appear to have been fully appreciated.

In looking over various plans of sanatoria few are found to face southeast or southwest. Ruppertsheim, near Konigstein, Germany, faces southeast. Basel San-



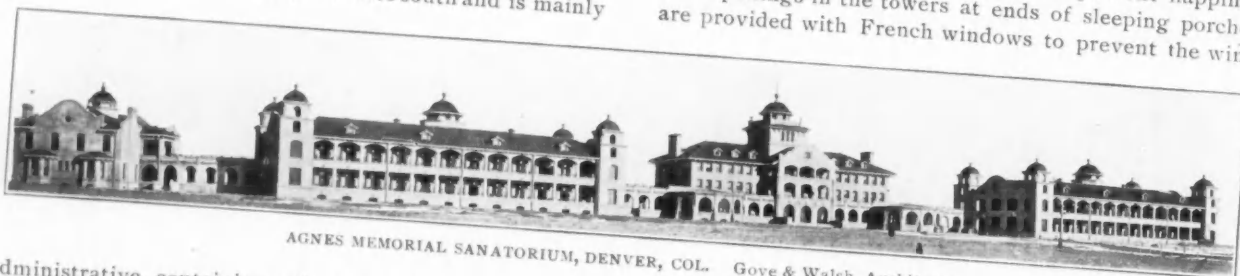
NORDRACH RANCH TENT.

THE BRICKBUILDER.

atorium, Davos, Switzerland, faces southwest, and the center portion only of Hohenhonnef in the Siebenbirge, Germany, faces southwest. In England, the King Edward VII Sanatorium at Midhurst faces almost south, with slightly projecting wings forming very obtuse angles with center portion of building. These projections are evidently made with a view of obtaining some shelter.

The only recent example nearly approaching the ideal in respect of obtaining the maximum of sunshine in the rooms, is that of "Heatherside" at Frimley, England, by Edwin T. Hall, architect, plan of which was illustrated in THE BRICKBUILDER of April, 1907. This is a two-storied building, the center part faces south and is mainly

tinuous porch runs in front of the rooms, of moderate depth, just enough to protect and accommodate the patient without excluding the sunshine from the bedrooms, and to assist this the porch openings are made as wide and high as possible. The intention is that patients will nearly always sleep on the porch, and with this in view it is made divisible by means of curtains made of heavy canvas the full width of porch and extending from the floor to a height of seven feet. The ends of curtains next the walls are fastened tight with cleats and the outer ends are fastened to rings in porch posts with straps about one foot apart drawn tight to prevent flapping. The openings in the towers at ends of sleeping porches are provided with French windows to prevent the wind



AGNES MEMORIAL SANATORIUM, DENVER, COL. Gove & Walsh, Architects.

administrative, containing offices, public rooms, twelve beds for patients requiring special attention, and four radial pavilions containing twenty-two patients' beds each. Had these radial pavilions been set at angles of 45 degrees instead of slightly less, all rooms would have faced exactly southeast and southwest. The radial pavilion idea is excellent for administration and supervision.

As regards the windows in rooms, Dr. F. R. Walters recommends that at least one-half of one side of each room should consist of window space.

The type of plan of sanatorium consisting of a corridor with rooms on each side has been abandoned as not conducive to the best results, and it is further recommended that even with the single line of rooms there should be ample windows in the corridor with corresponding openings in the walls of rooms so that a thorough circulation of air can be obtained. But it is evident, if the starting point is made to obtain rooms facing as nearly southeast and southwest as possible, that this would eliminate any possibility of the plan with a double row of rooms.

Where climatic conditions permit, open air sleeping porches should certainly obtain. From the fact that an open air sleeping gallery is provided in the North London Consumption Hospital and that in Colorado, sleeping porches are used in zero weather it would scarcely seem that climatic conditions imposed limitations on the idea.

The Agnes (Phipps) Memorial Sanatorium, Denver, Col., was the first example on a large scale in Colorado, of the hospital plan modified by the insertion of sleeping porches. It consists of a central administrative building connected by corridors to two two-storied pavilions containing accommodation for forty patients each. A con-

sweeping lengthwise of the porches, and at the same time making comfortable little sun rooms.

Important points in the construction of pavilions are:

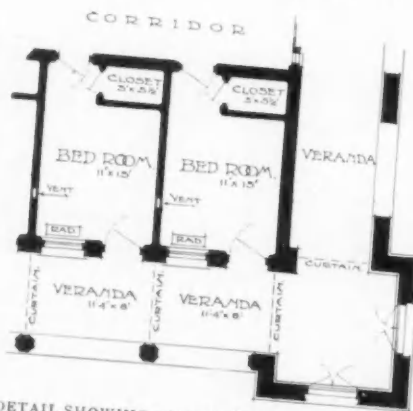
1. The elimination of all wood trim in the rooms; all corners and angles rounded; floors of quarter sawed yellow pine filled and varnished and the walls and ceiling painted.
2. Wide door between room and porch so as to permit of cot passing through.
3. Stud partitions between rooms doubled and insulated with hair felt, making them sound proof.

4. Rooms heated by steam through direct-indirect radiator, and ventilated through flues placed near the floor and carried up to the attic where they connect with galvanized iron ducts. These ducts are proportioned to the intakes and carried to the center of the building, opening into a large heated chamber directly under a cupola.

The addition now being built to the Glockner Sanatorium, Colorado Springs, Col., provides sleeping porches and a system of baths between the rooms for the accommodation of the better class of tubercular patients.

The sides of sleeping porches are provided with sashes which slide down into pockets, and adjustable shades are used inside to regulate the light. The doors between rooms and sleeping porches are, as in the Agnes Memorial Home, made wide enough for beds or cots to pass through. The floors of corridors are deafened by means of a double set of joists, clear of each other.

The plan of the proposed Sanatorium, Cragmor, Colorado Springs, was prepared according to directions of the late Dr. S. Edwin Solly and is designed to accommodate the best class of patients, and as the climate of Colorado



DETAIL SHOWING PATIENT'S UNIT, THE AGNES MEMORIAL SANATORIUM, DENVER.

is peculiarly favorable to the open-air treatment, the sleeping porches have governed the idea of the scheme. The building will face southwest.

The center portion of the building contains on the first floor mainly administrative and public rooms, and the two upper stories, patients' rooms. The wings are two story and contain patients' rooms, nurses' rooms and dietary kitchens.

The unit of patient's suite consists of a sleeping porch, private bath and a room with a fireplace, — this latter being a dressing-room rather than a bedroom, — the idea being that patients will sleep on the porch. Cross ventilation to the rooms is obtained by the windows on the two sides, and each bathroom has a special ventilating flue. To prevent stagnation of air in the inner corners of sleeping porches, vent flues in side walls are proposed. To reduce to the minimum the disturbance of one patient by the coughing of another, the sleeping porches are separated both vertically and horizontally. No porch is built over another, and none adjoin, each having a room intervening.

The Cottage Sanatorium at Cragmor, Colorado Springs, is an attempt at a compromise between the sanatorium on hospital lines and the plan of a central building with single hut or tent accommodations for patients. It consists of the central administrative building with cottages for men and women placed on either side at moderate distances from central building and from each other and is possible of extension by simply repeating the cottage buildings.

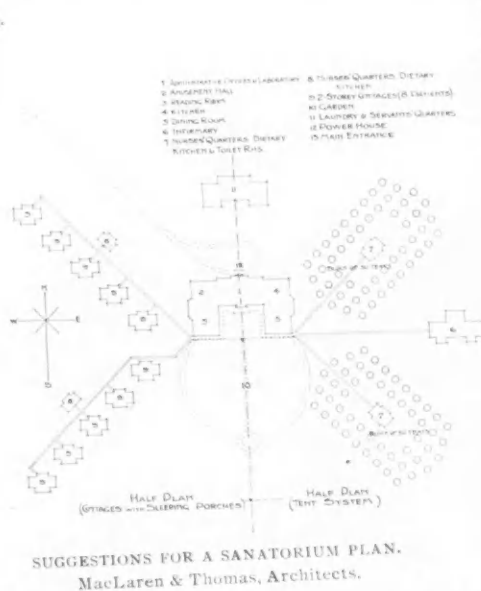
The problem lay in determining the arrangement and the number of patients to be accommodated in the cottage unit and to obtain sleeping porches with two open sides. Each cottage is two stories in height, the rooms have all good direct light and are intended for dressing-rooms rather than bedrooms. No attempt has been made to obtain complete isolation of sleeping porches, and so far no complaints have been made of the coughing of one patient disturbing another. Should this occur, patients so disturbing could be located in the second-story corner suites. The sides of porches are provided with adjustable curtains. The scheme has been largely experimental, and therefore the utmost economy was observed in construction, — the central building, for instance, being an old cottage re-modelled and extended. All the buildings are frame, and the heating is by hot-air furnaces. At present the principal accommodations are two cottages containing eight rooms each.

In the Nordrach Ranch Sanatorium, Colorado Springs,

Col., patients' accommodations are provided entirely in tents and the open-air treatment is here carried out to its fullest extent. The following description is by Dr. John E. White, President and Medical Director:

"The tent colony at the Nordrach Ranch Sanatorium begins about 75 feet from the central building and consists of nine 25-foot terraces, 200 feet long, running parallel to each other. Each terrace accommodates eight Nordrach tents, 25 feet apart. The terraces are supported with rough stone walls and with the cement sidewalks, trees, lawns and flower gardens, a very attractive effect is secured. The nurses' tents are located in the village of tents and at the head of every bed is an electric bell which is connected with the nurses' tents. There is also a system of private telephones connecting the various departments, one of which communicates with the doctor's tent. In one corner of the tent colony there is a two-story frame building containing janitor's room, outside lavatories for men and women, together with coal and woodbins. It is only possible

to carry out the open-air treatment to its fullest extent in a well-constructed tent. The ordinary type is not sufficient, — there is not enough ventilation through the canvas itself to supply the required amount of fresh air. A tent must have special ventilating features. The Nordrach tent is octagonal in shape, with shingle roof, oiled floor and strong army canvas on the sides. A galvanized stationary ventilator, shaped somewhat like an umbrella, fits into the apex of the tent and can be opened or closed by means of a damper controlled by a cord fastened usually to the head of the bed. In addition there are two good-sized windows in each tent on opposite sides of the octagon. The furnishings are the same as would be used in a chamber in the house, namely, a white iron bed, plenty of soft, warm bedding, a bureau, toilet table, rugs, chairs and a stove. The wardrobe washstand is built into the tent itself. The fires are built by the attendants before patients go to their tents at night and the ventilators are closed until after retiring when they are opened and all have a deep, refreshing sleep, with scarcely a cough, whereas if patients were in the closed rooms of houses they would probably cough all night. The fires are built again in the morning before patients arise, and tents are warmer and more comfortable than the rooms in most houses. The strongest winds never make the least impression on the tents, as their octagonal shape renders it impossible for the wind to get a purchase upon them. Our tent life is



TYPICAL PLAN OF PATIENTS' SUITES, GLOCKNER SANATORIUM, COLORADO SPRINGS, COL.
George M. Bryson, Architect.

more than satisfactory in every way, and the results that we are obtaining are very gratifying."

The Nordrach tent illustrated while not exactly like the one in use there follows closely its design but is modified in construction with a view to making it a permanent and as nearly as possible fireproof structure and requires only periodical renewal of the canvas sides.

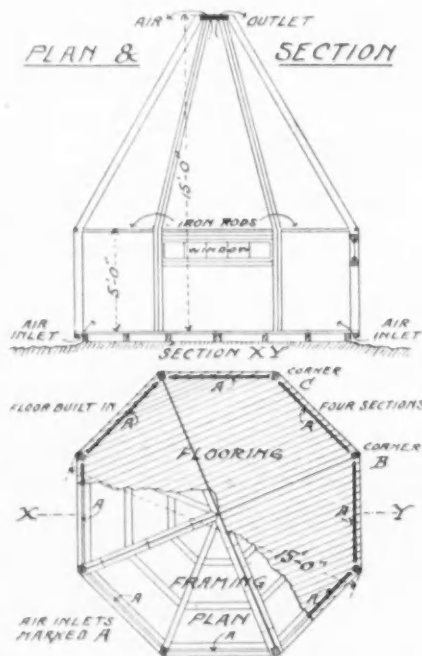
A steel frame work of Ts and angles is proposed, with hollow ventilated roof of gypsum slabs covered with asbestos shingles. The floor is formed of monolith. The flue from stove is hollow concrete construction. In all other respects it is similar to that described by Dr. White.

Groups of these tents could with advantage be steam heated from a central system, and not only eliminate the smoke from the colony but practically the only danger from fire.

The following is a description of the Gardiner Sanatory Tent by Dr. C. F. Gardiner:

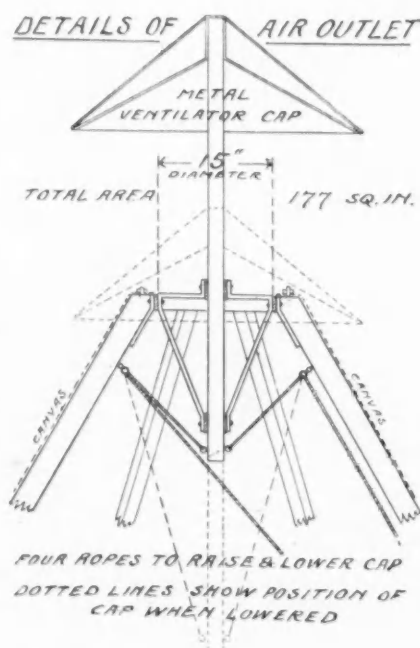
"The tent is of dark khaki twelve-ounce duck, stretched over an eight-sided framework of wood, without any center pole and without pegs and guyropes, so that it stands firm, like a house. The floor is raised eight inches from the ground, and is in sections so that it can be easily moved. The lower edge of the wall is fastened several inches below the floor and one inch out from it all around. This is to insure at all

times an inflow of air that is gradual and without draughts, since this inch space in a circular tent represents an area of 520 square inches, and the hole in the top for overflowing air has an area of some 177 square inches. In this way the tent cannot be closed and is ventilated automatically and constantly. There are small shutters so constructed that they can partially close the opening from within the tent in case of very high winds. The opening at the top of the tent is covered by a zinc cone, which can be controlled by pulleys and rope within the tent, in stormy weather being drawn to within an inch of the tent roof. The heating is by a central draught, circular stove, which burns either wood or coal and can be so regulated as to keep a good fire without care, for ten hours. The stove is of such a size as to thoroughly warm the tent under any conditions and at the same time it is impossible to overheat the air or interfere with ventilation.



GARDINER SANATORY TENT. SIZE FIFTEEN FEET.

The more heat used, the greater the displacement of heated air upward, and a more rapid interchange of air at once occurs. As the heated air can escape at the top, the fresh air can always enter at the bottom of tent. This is automatic and is not under the control of the invalid. A small window, which does not open is used in these tents. It is placed horizontally and is 1 foot by 6 feet. The floor being about eight inches from the ground there is very little fear of dampness. It is, of course, more comfortable and practical for an invalid to live in tents during the winter in a climatic dry belt such as Colorado, Mexico, Arizona and some parts of California, but they have been used with success in Massachusetts, Oregon, New York and probably in many other places. Sanatory tents, or, if preferred, sanatory tent houses, can be used as part of a general sanatorium; a main building being used as a heating, dining and administration building, and surrounded by the tents."



Suggestions for two types of plan are here offered, one being a system of detached cottages, and the other groups of tents, the central building and infirmary being the same in either case.

Of the cottage plan the unit would be similar to that of Cragmor Cottage Sanatorium, which is two story and accommodates eight patients in all. The cottages are so placed as to cause the two open sides of each sleeping porch

to face south and east and south and west and the rooms behind the sleeping porches are well lighted, especially those at either end, which have south and east and south and west windows. The aspect of the cottage unit having been determined by the foregoing conditions, the placing of the units in their relation to each other has been governed by the following considerations: far enough apart so that the shadow of one will not strike the other; ample circulation of air around each cottage; clear views and privacy. The entrances to these cottages being at the back confines traffic to that side, and thus there is the desirable quiet in front of sleeping porches. Nurses' quarters and a dietary kitchen are provided with each group of five cottages. In certain climates the cottages could, if necessary, be connected to each other and to the central building by a covered way.

In the plan on tent system, the tents are arranged in groups of fifty or sixty as a maximum. Each group of

tents is arranged around a kind of quadrangle, in the center of which is a small building containing accommodations for two nurses, a dietary kitchen, bath and toilet rooms. To this building would be connected the bells from all the tents in one group.

Each group would to a certain degree be independent of the rest of the institution. The tents are arranged with a view to as little interference with each other as possible, in regard to air, light or view. The tent suggested would be the modified Nordrach Tent, as illustrated, 12 feet diameter and 25 feet on centers, with windows placed on southeast or southwest faces.

The cottages or tents would be steam heated from a

central system. Both cottages and tents are placed on radial lines, facilitating supervision, and large future extensions are obviously easy.

The infirmary building for the seriously ill would be laid out on the principle of the cottage unit on a larger scale. In the central building the rooms frequented by invalids would have light on the southeast and southwest sides. The power house and heating plant would be as far removed as practicable from the sanatorium proper, and the main entrance and drive thereto would be at the back of the building, thus insuring freedom from dust and noise, to all the frontages of the buildings.

The Contagious Hospital.

BY EDWARD F. STEVENS.

IN many states there is a law requiring cities or large towns to be provided with hospitals for the care of contagious diseases. In Massachusetts the statute reads (Chapter 75, Section 40):

"Each city shall establish and be constantly provided, within its limits, with one or more isolation hospitals for the reception of persons having smallpox or any other disease dangerous to the public health. Such hospitals shall be subject to the orders and regulations of the boards of health of the cities in which they are respectively situated. A city which, upon request of the state board of health, refuses or neglects to comply with the provisions of this section shall forfeit not more than five hundred dollars for each refusal or neglect."

Many cities and a few of the larger towns are provided with commodious, well-planned contagious hospitals, while others are provided with buildings hardly worthy of the name of "hospital," and often called "pest houses," where those afflicted with contagious diseases are treated. These buildings are usually old houses pressed into service in the time of an epidemic, or buildings put up hastily under the same pressure, with the argument that when they are too much infected they can be burned down.

Some suburban towns have excellent contagious hospitals, but most of them can care for but two diseases at a time, and if there are two cases of scarlet fever and one of diphtheria in the hospital patients must be kept in separate buildings and attended by separate nurses. There must, of course, be a night nurse as well as a day nurse for each disease. If, while these two or three isolated cases are in the hospital, several cases of measles or erysipelas develop in the town and ask admission to the hospital, these newer cases must either have separate buildings or the older cases must be bundled out and, after a thorough disinfection process, the new ones admitted; or if a suspected case is brought in the patient may be kept in the suspect ward for a day or two, then placed in the general ward with others who have the disease he is supposed to have, only to find after another day that there was a mistake in the diagnosis, but too late to prevent infection.

To guard against this last named difficulty and to provide for the major and what might be called the minor contagious diseases, the present policy would call for a building with maximum capacity for each disease and sufficient suspect wards for each department, each with its own diet, toilet, linen and medicine rooms; also a

separate department for each sex. With the larger city hospitals this can and should be carried out. But for the town supporting a 50-75-bed general hospital and with a need of a maximum 18-20 beds for all contagious diseases such subdivision is impossible. How then can the smaller communities provide adequate and safe care for those intrusted to them?

The question has often arisen in the mind of the writer, as it has doubtless with thousands of others, if the attending physician can safely go from scarlet fever to diphtheria, from measles to typhoid, from smallpox to pneumonia, from one house to another, with apparently perfect safety to the other patients, why cannot a nurse or an attendant, with the same precaution, attend to the wants of patients with different contagious diseases? This was never satisfactorily answered until the writer, visiting a hospital in Paris designed by Dr. Louis Pasteur,—was shown a man ill with African sleeping disease while in the adjoining bed was a man with erysipelas, adjoining this a boy with scarlet fever, all separated by glass partitions but visible and under the eye of the attending nurse. Next to these patients was a three-bed ward with three boys convalescing from diphtheria, and so on around the entire building, holding some eighteen or twenty patients, all visible from the main corridor yet separated from it and from each other.

The patient is taken directly to any room and whatever the development of the disease is completely isolated from all others. The nurse on entering the door puts on the gown kept in that room, covering her other clothes and her hair. After attending to the wants of the patient she thoroughly cleanses her hands at the sink which is in each room, removes her gown, taking all precaution and observing all the rules of antiseptis. Should a patient desire a bath the portable tub is wheeled into the room, which is filled from the taps at the sink. The tub is afterwards sterilized and ready for the next patient.

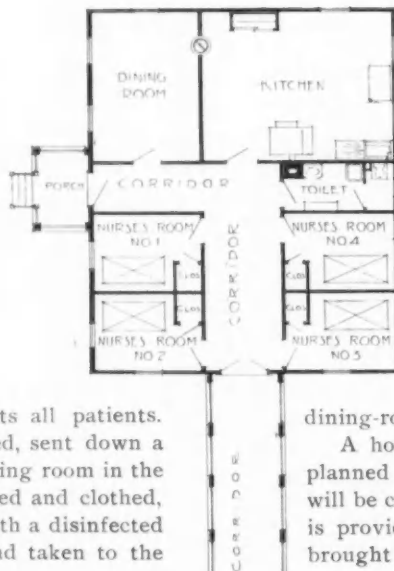
In the same way the food is taken into the room and after the meal all dishes are sterilized before going back to the diet kitchen shelves.

The general rule of the town and city boards of health is to form a "dead line" around the hospital, forbidding anyone to venture beyond "this sign." Not so the Pasteur Hospital. A narrow balcony surrounds each building and on certain days or hours the friends of patients

are allowed to go to the windows of the rooms of their friends and talk to them and see what their condition may be without fear or danger from contagion.

With these practical results before him the writer has endeavored to work out a small hospital to accommodate ten to twenty patients where those afflicted with one contagious disease can be cared for without danger to those having another.

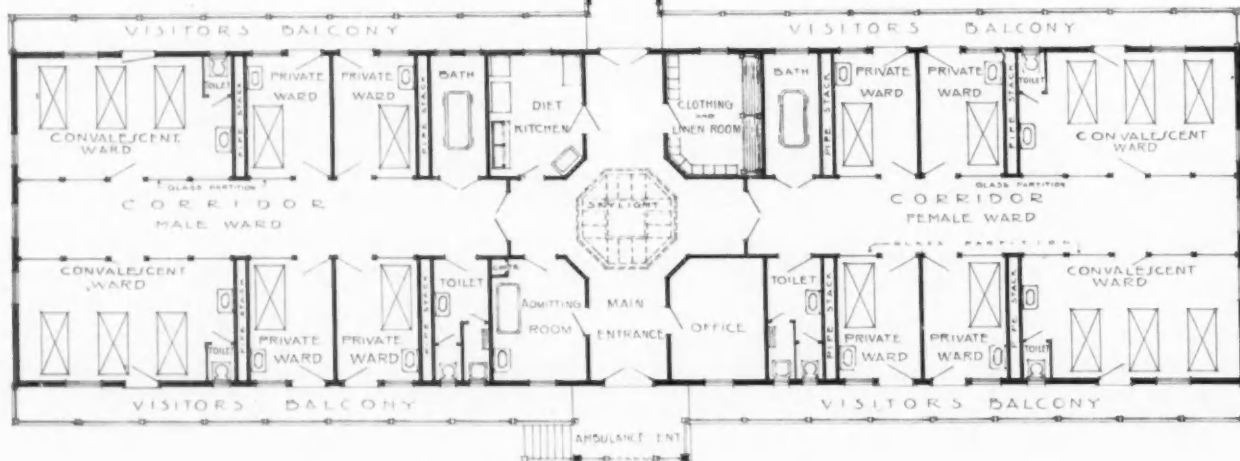
The plan is to provide for twelve to twenty beds,—half male and half female. One room admits all patients. Here the street clothes are removed, sent down a chute to the disinfecting or fumigating room in the basement. The patient can be bathed and clothed, with the hospital gown, covered with a disinfected sheet, placed on the wheel truck and taken to the



room assigned to him. The admitting room is then closed, disinfected and is ready for the next patient.

In the same way one diet kitchen provides food for all and one linen closet the linen. The rooms may have all of one disease or all different, the only division being the division of sexes in the two ends of the building. The single rooms may be used for either the more virulent or suspect cases and the large ward for convalescents. In the three bedrooms special toilets would be provided. Adjoining this building could be a small one-story building with kitchen, dining-room for nurses, and sleeping and toilet rooms.

A hospital for contagious diseases was recently planned for a near-by city, in which sixteen patients will be cared for, and accommodation for four nurses is provided on the second floor, the cooking being brought from the main kitchen.



PLAN FOR ISOLATING HOSPITAL BUILDING.

Edward F. Stevens, Architect.



MAIN BUILDING, FREEDMENS HOSPITAL, WASHINGTON, D. C. Price & de Sibour, Architects.

The American Theater — X.

THE STAGE (*continued*).

BY CLARENCE H. BLACKALL.

THE accompanying illustrations of an actual rigging loft (Figs. 8 and 9) and fly galleries (Fig. 10), will serve to make this construction clear. The leading blocks in this case are set in light frames on an angle, the gridiron itself ending at the leading blocks. The illustrations will also give one an idea of the quantity of rope required, which is often many miles in total length.

In the fly gallery illustrated is shown the mechanism for operating curtains, which is of a most primitive character, consisting simply of three drums operated by man power. This is the usual arrangement. There are at least three curtains in a theater, the outer one made of asbestos or of steel, the next one, which is specifically called the main curtain, and a curtain which serves as an act drop. Sometimes a fourth curtain is added in the shape of a black velvet drapery intended to be lowered only when quick changes are to be made on the stage. This is really somewhat cumbersome and is not particularly desirable.

The height from the stage floor to the rigging loft must be such that any drop or border can be lifted entirely free from the top of the highest scene which is likely to be set on the stage. As a matter of fact the higher the stage-space the better the stage manager is pleased. Few scenes are ever more than twenty-five feet high. Consequently a height in the clear of fifty feet would seem to be sufficient, but sixty is a safe minimum and it is often made as much as seventy-five or one hundred. With a proscenium opening of over thirty-five feet and a height of gridiron of less than seventy, it is necessary to lift the curtain above the top of the gridiron. In this case the supports for the sheaves are either furnished by the roof beams or bracketed out from the proscenium wall. The method of supporting the curtains is precisely the same as for the scenery.

With the arrangements thus described the scenery constitutes a dead weight, every pound of which is moved by the pull of fly men. In European theaters the scenery is almost always counterweighted, and it is becoming quite generally the custom to counterweight the scenery in the best of the American houses. In such case the leads

from each scene are brought to a rod on which are threaded iron weights, the whole sliding in vertical guides against the side wall of the stage, and operated by an endless rope attached to the counterweight frame and running over pulleys at stage level and at gridiron, as shown by Figure 11.

In this case the hanging lines are carried over to the side wall of stage, not to the pin rail, and a scene can be operated from the stage level or from one of the fly galleries. A simpler but less convenient way is to dispense with the continuous hand rope, hitching the lead lines to a counter weight at fly gallery level after the scene has been hoisted in place and trimmed. This does not allow the scene batten to be lowered to the stage, but the scene can be hoisted to the gridiron if necessary, and the side walls at stage level are kept free of ropes or weights.

Several attempts have been made to apply hydraulic power to the operation of the scenes, and with perfect mechanical success, but the cost is very large, and is

seldom warranted by the results. In the Metropolitan Opera House, New York, electricity has been applied very successfully to moving portions of the scenery. On one of the left fly galleries is a series of drums, one for each of five of the lead lines in each entrance. Any one or more drums can be thrown in right or left gear with a main shaft on which is an electric motor. At the stage level, beside the prompt stand, is a small switch board with a rheostat handle and series of push

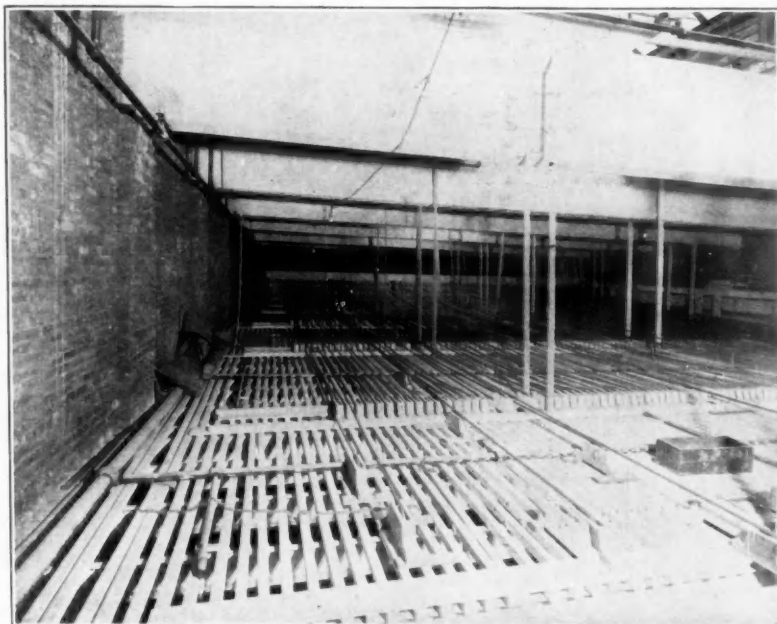


FIG. 8. RIGGING LOFT, COLONIAL THEATRE, BOSTON.

buttons, two for each drum. Pushing a button engages a corresponding drum on the fly gallery into the main driven shaft, so that the drum will either raise or lower the scene, while the rheostat handle starts the motor and regulates the speed. Any number of scenes can thus be raised or lowered simultaneously or in opposite directions. There are two motors and sets of drums, one for the curtains and the drops of the first entrance, and one for all the rest. This very ingenious mechanism was devised and installed by the Elevator Supply and Repair Company, and is shown by Figure 12.

The Hippodrome, New York, also has a limited electrical scene operating device. The ropes are led to drums on the fly gallery, and the power is transmitted from a mainshaft by beveled friction wheels, which are thrown in by hand by an operator stationed in the fly gallery. This theater also has five electric carriers working on overhead trolleys suspended from the grid-

iron, used for shifting heavy pieces of scenery. Each has a lifting capacity of about twelve hundred pounds.

In designing a proscenium it is quite customary to keep the actual constructive wall back a short distance from the curtain opening on each side, building out the lower portion of the proscenium of iron to withstand hard usage and carrying up the ornament of the proscenium opening in plaster. If proper provision is made therefor it is very easy to reserve a space immediately over the proscenium arch and in front of the curtain ropes, permitting of a light gallery to be thrown across from fly gallery to fly gallery. This is often a convenience in special effects and in repairing defects in the curtain mechanism. It is also highly desirable at times, to be able to reach the center of the space immediately over a border light, and for this purpose, a device which is quite common in Europe is sometimes used, consisting of a light gallery not over a foot and a half in width suspended from the rigging loft by light iron rods, the borders being suspended in turn from this bridge, and fed electrically by a cable leading out under the bridge. The border reflectors take up about a foot and a half. Consequently this space cannot be used for scenery, and a bridge of this kind might often be a great convenience.

To show the complexity of the foreign stage as compared with the American, sections are given here (Figs. 13 and 14) of the upper portion of the stage of the Court Theater, Vienna, which is, perhaps, the most elaborately equipped stage in the world.

A stage construction known as the Asphalia system was devised in Vienna some years

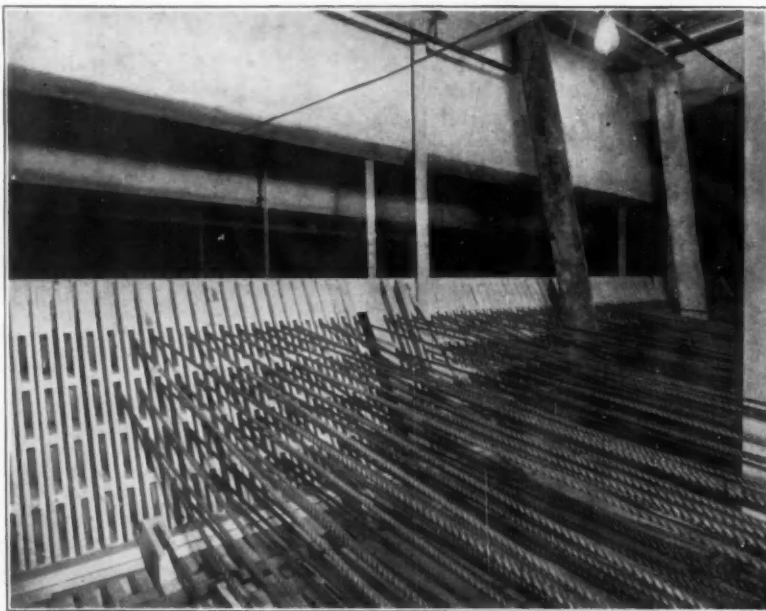


FIG. 9. HEAD BLOCKS, COLONIAL THEATER, BOSTON.

with the curtain. The only theater in this country which has been equipped on this system is the Auditorium at Chicago. It is a luxury of stage construction which is appreciated to a limited extent by those who have it, but the cost is so great and the result in the main is really so little with our American methods of scenery building that few theater managers care to pay for it.

The proscenium wall is usually carried down underneath the stage on the curtain line. The projecting apron is generally open underneath so that for special attractions the orchestra pit can be floored over, extra seats put in, and the musicians stowed away under the stage. This is a very unsatisfactory arrangement from the standpoint of the audience, but means more profit for

the house and sometimes has to be endured.

One of the most remarkable pieces of scene building was the ship which was built for the production of *L'Africaine* in the Paris Opera House. The stage represents a cross view of an East India liner looking towards the rear and the ship is crowded with hundreds of people. At a given time the ship is supposed to strike upon a rock and cants bodily to one side, throwing the mass and all the people at a

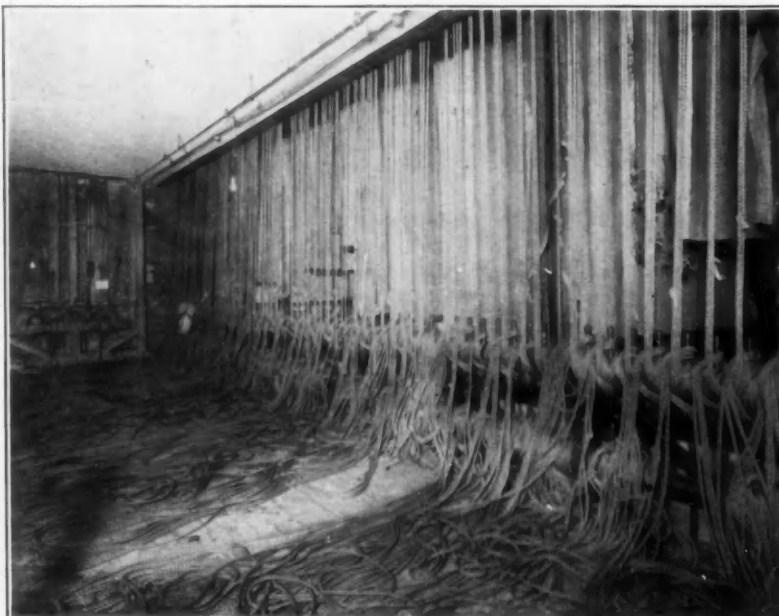
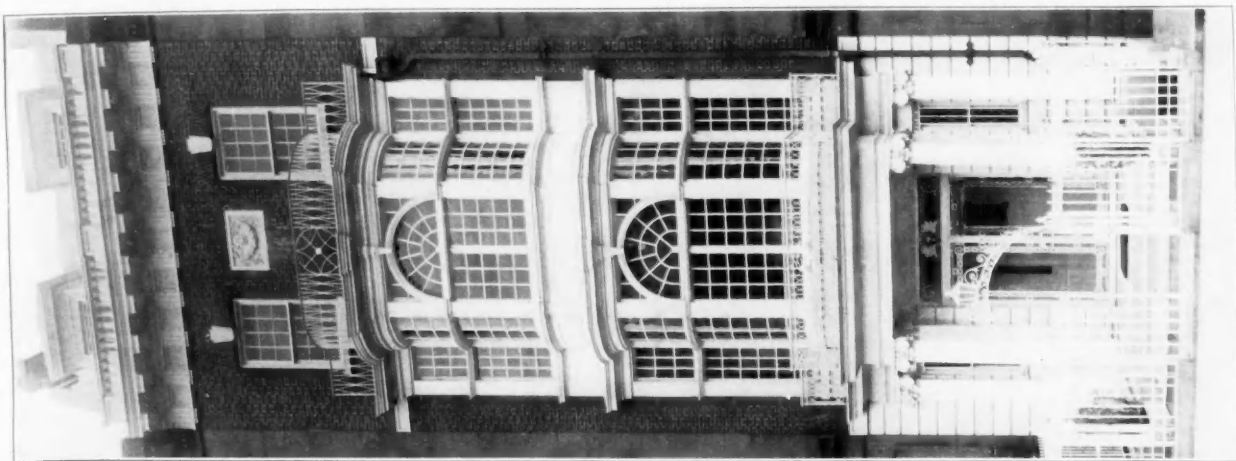
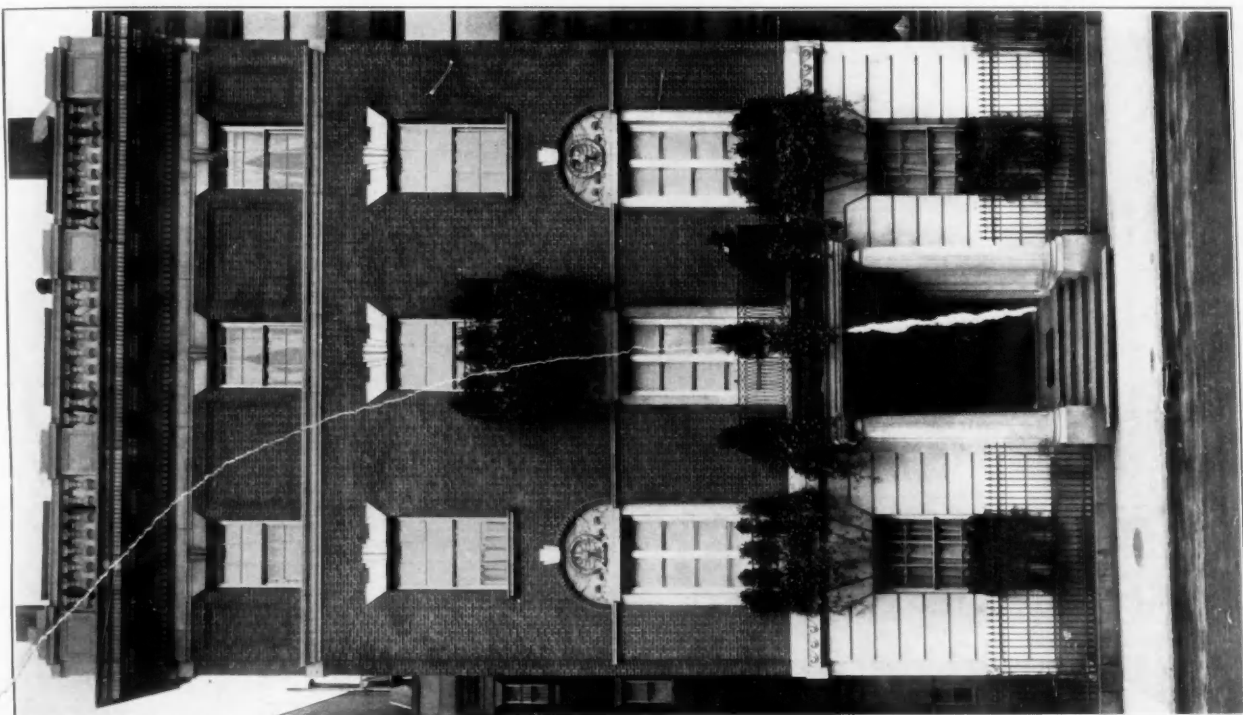


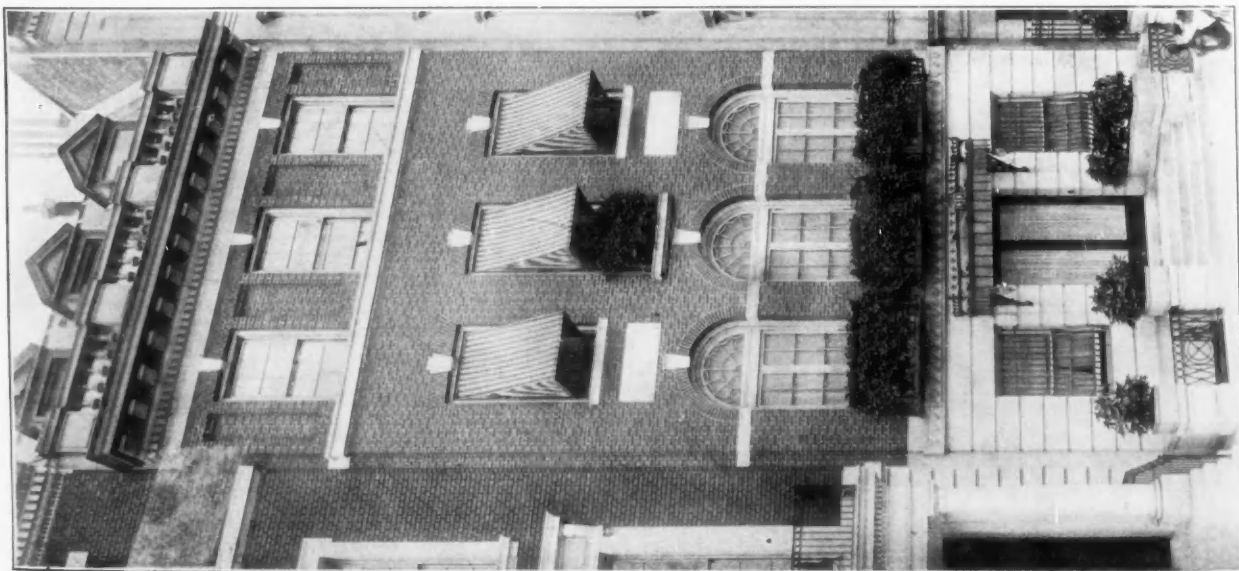
FIG. 10. FLY GALLERY, COLONIAL THEATER, BOSTON.



12 WEST 50TH STREET.



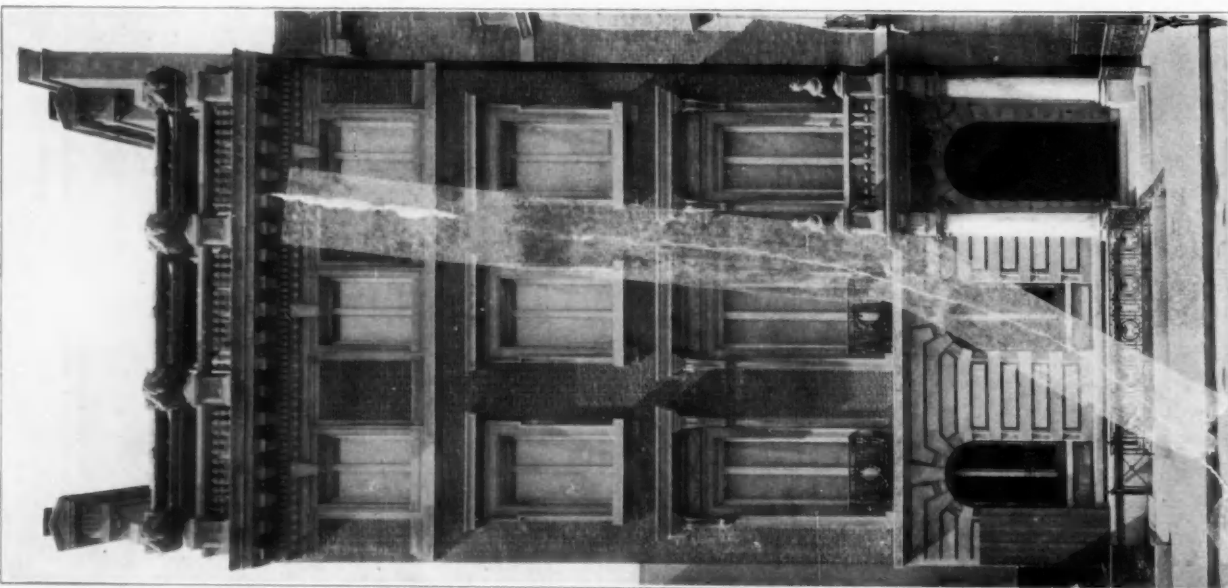
✓ 12 WEST 50TH STREET.
MR. W. MEAD & SONS, ARCHITECTS.
NEW YORK CITY HOUSES.



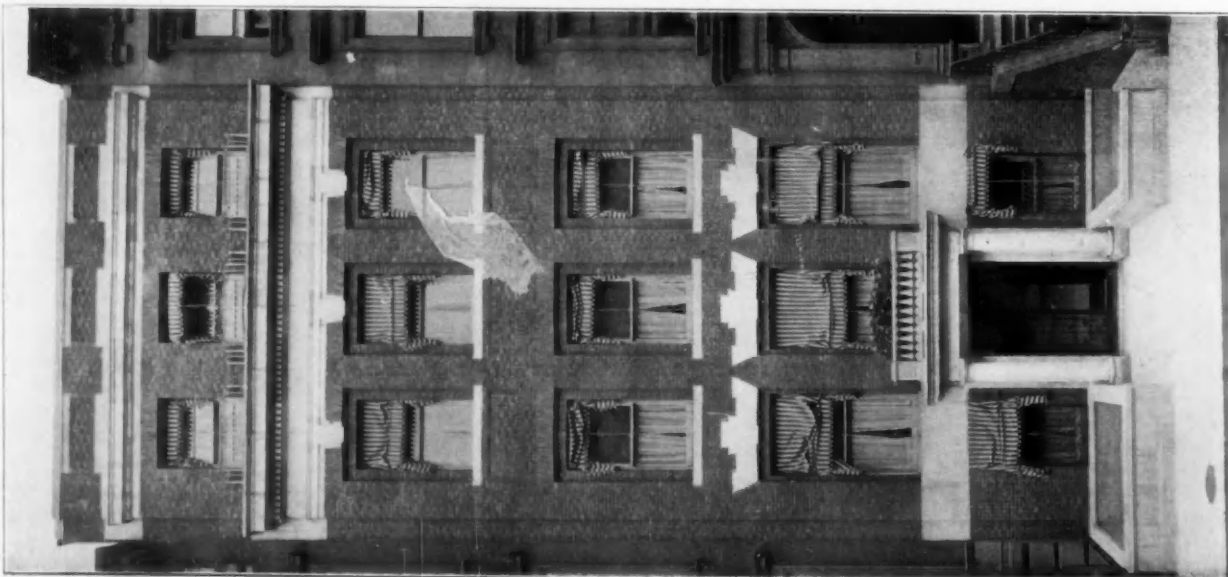
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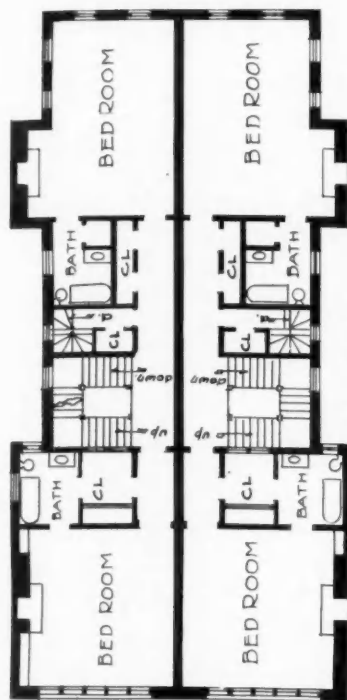
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GROSVENOR ATTERBURY, ARCHITECT.



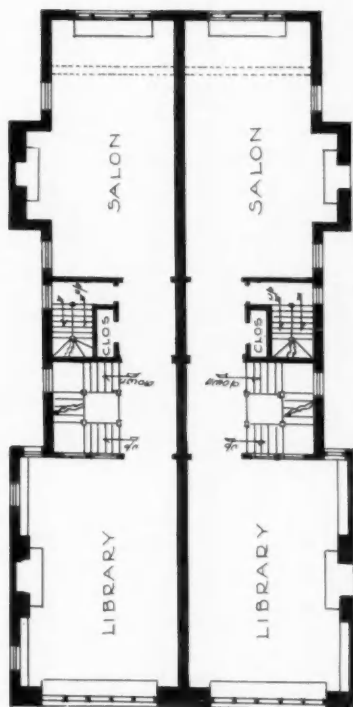
16 EAST 79TH STREET.
WARREN & WETMORE, ARCHITECTS.
NEW YORK CITY HOUSES.



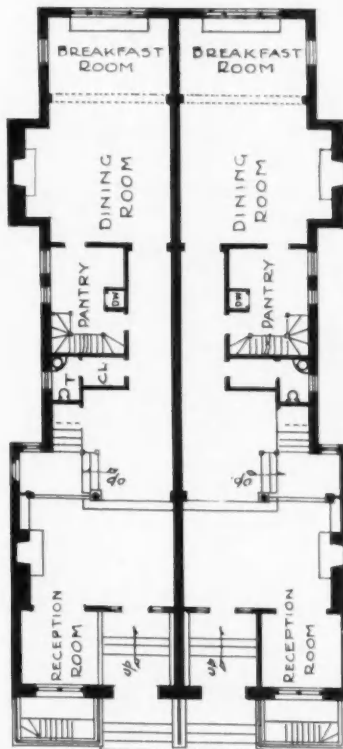
21 WEST 47TH STREET.
GROSVENOR ATTERBURY, ARCHITECT.



THIRD FLOOR.



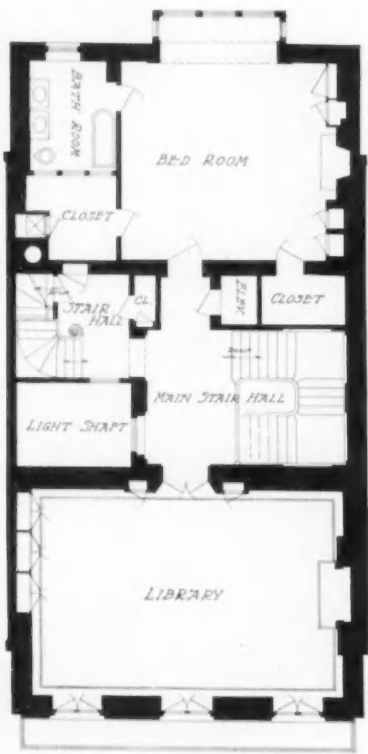
SECOND FLOOR.



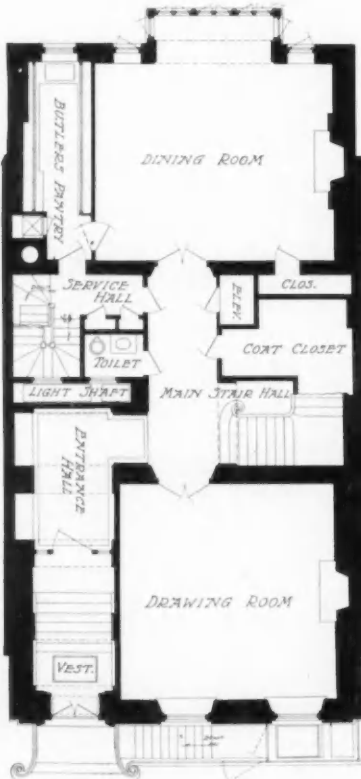
FIRST FLOOR.



105 AND 107 EAST 73RD STREET,
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NEW YORK CITY HOUSES.

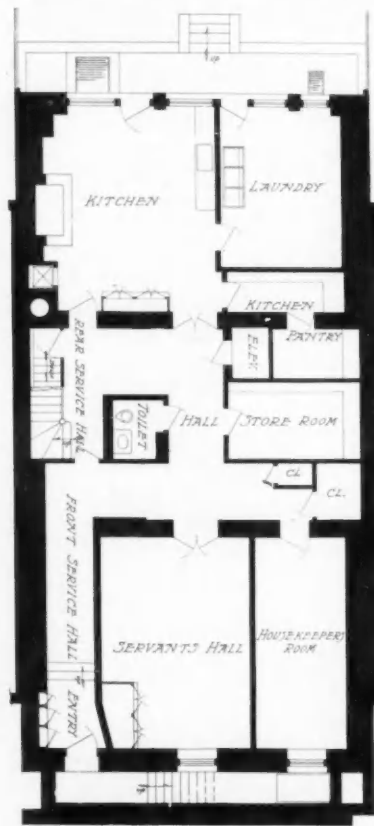


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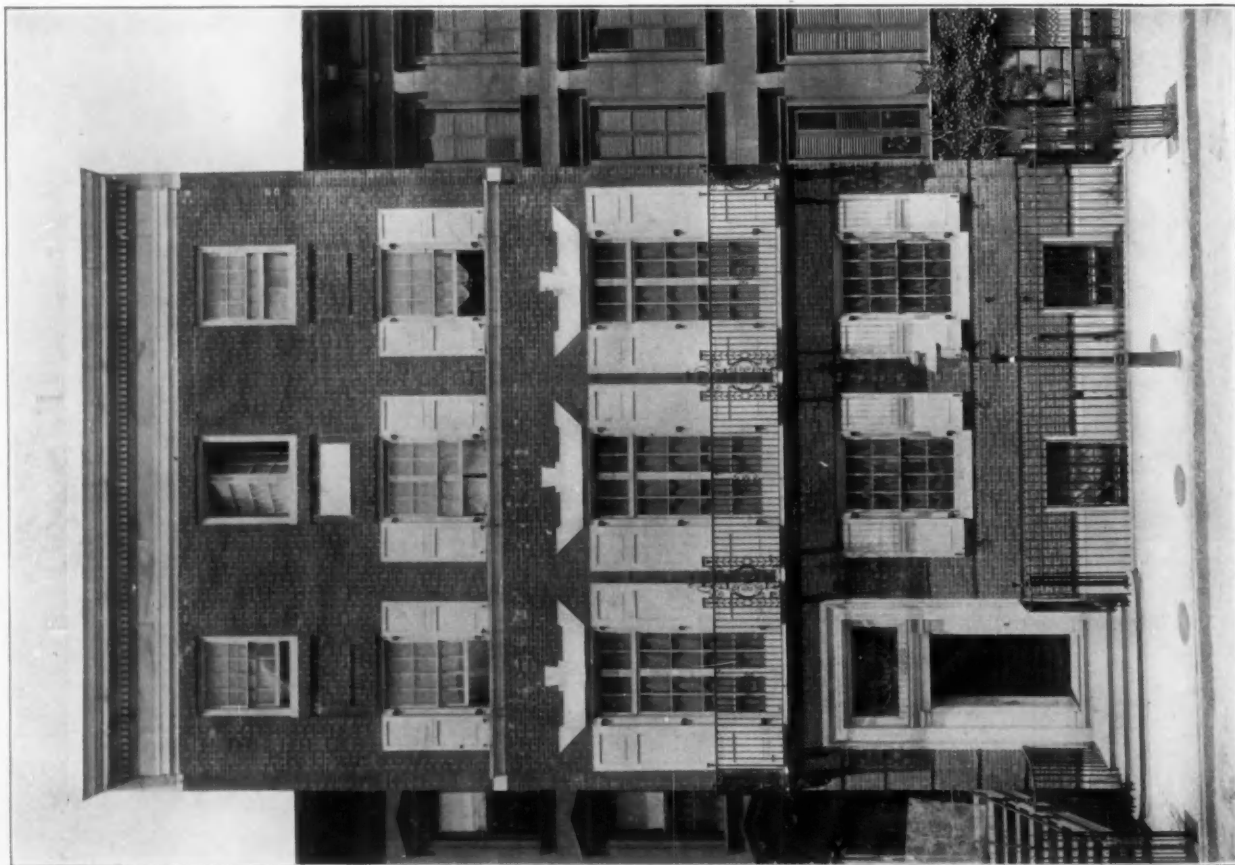


"FIRST FLOOR PLAN"

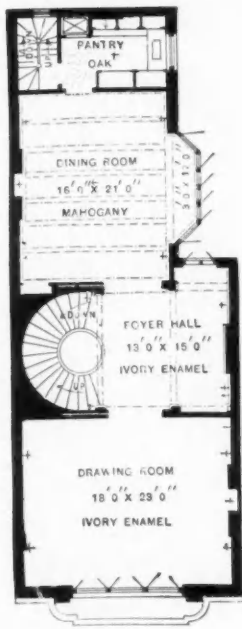
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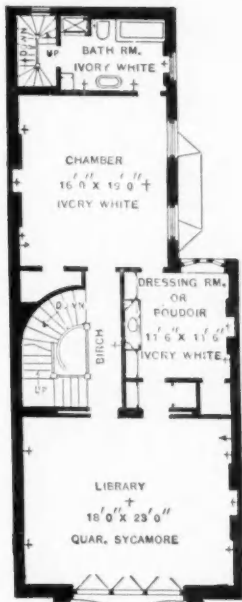
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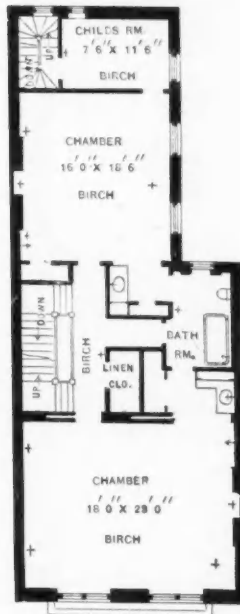
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CHARLES A. PLATT, ARCHT.
NEW YORK CITY HOUSES.



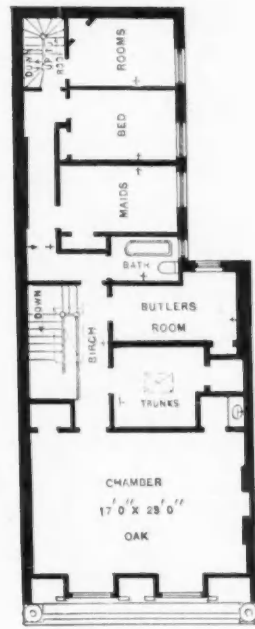
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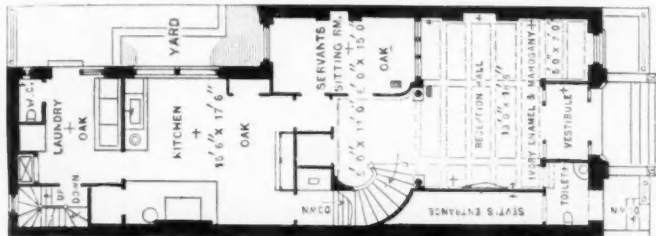
SECOND FLOOR.



THIRD FLOOR.



FOURTH FLOOR.



GROUND FLOOR.

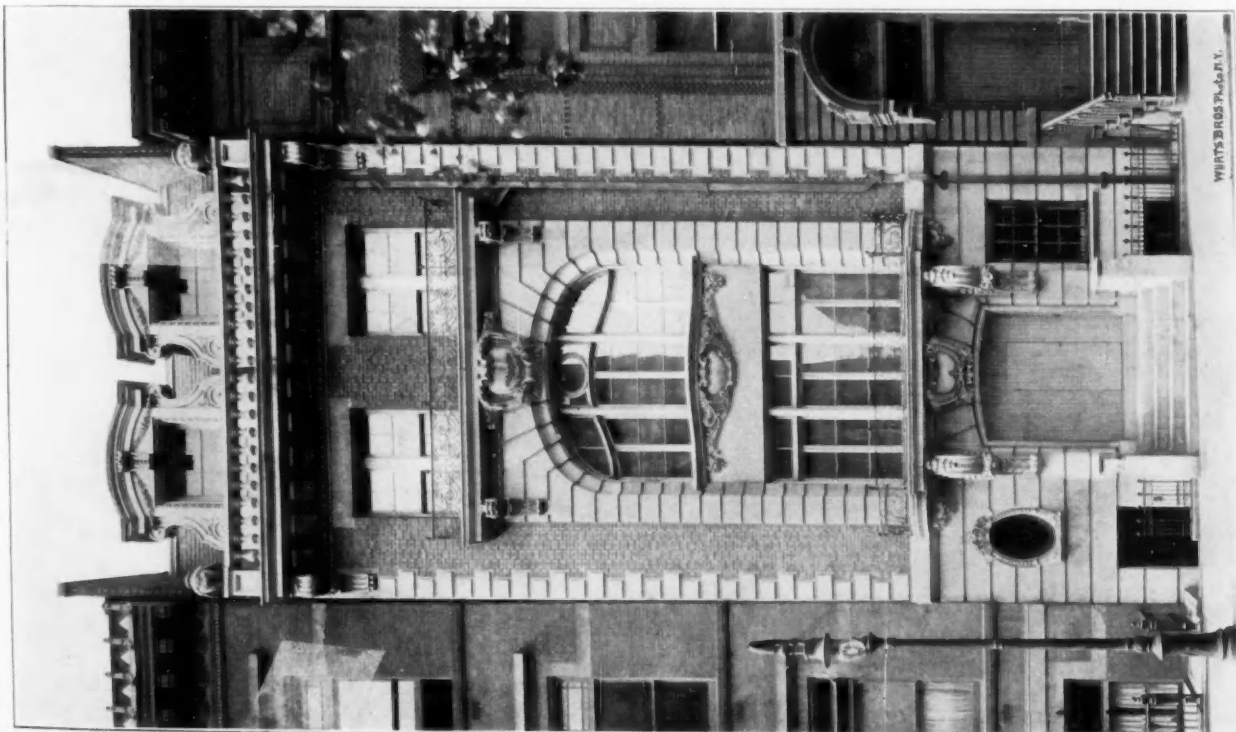
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CHARLES BRENDON & CO.,

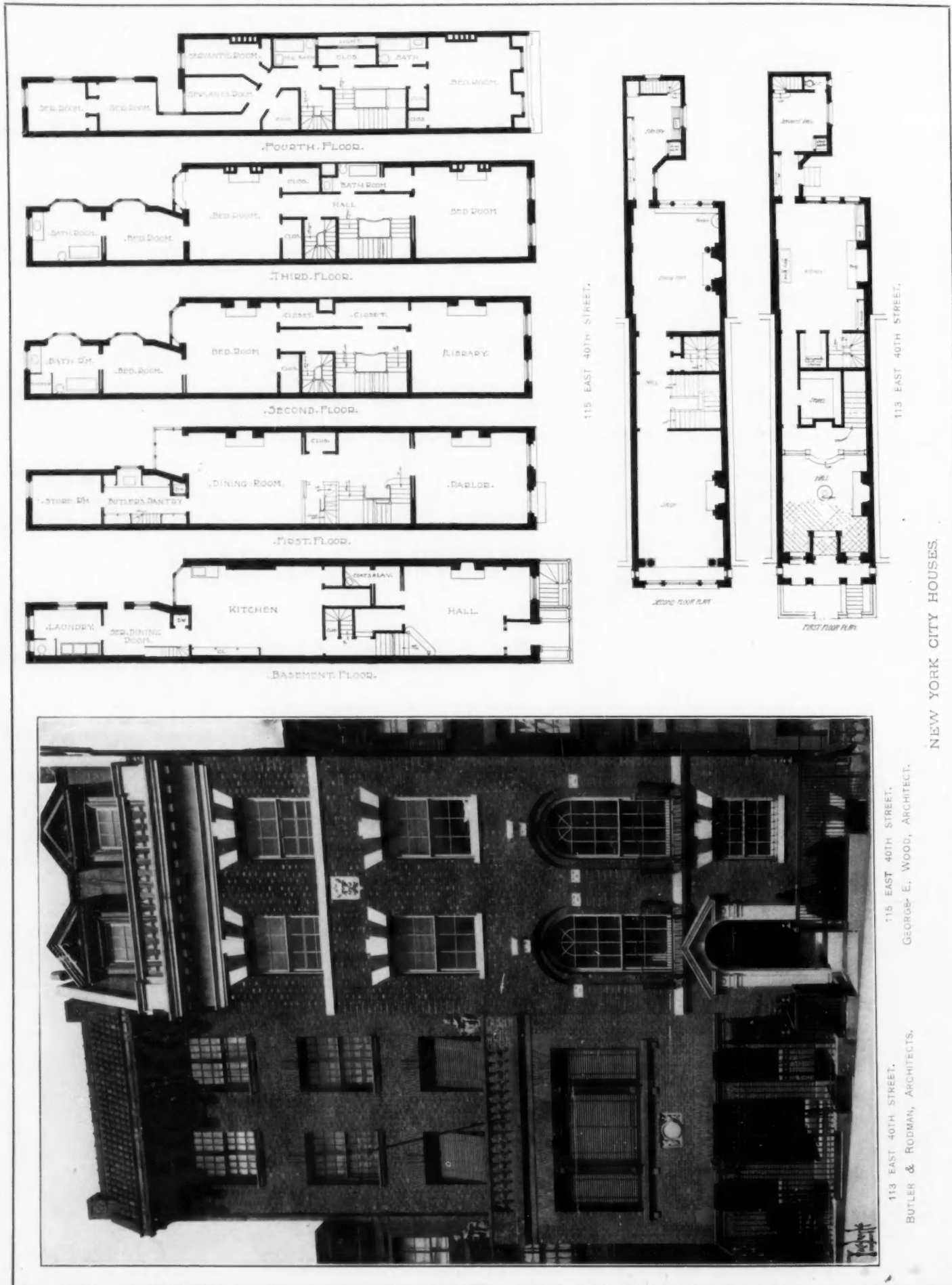
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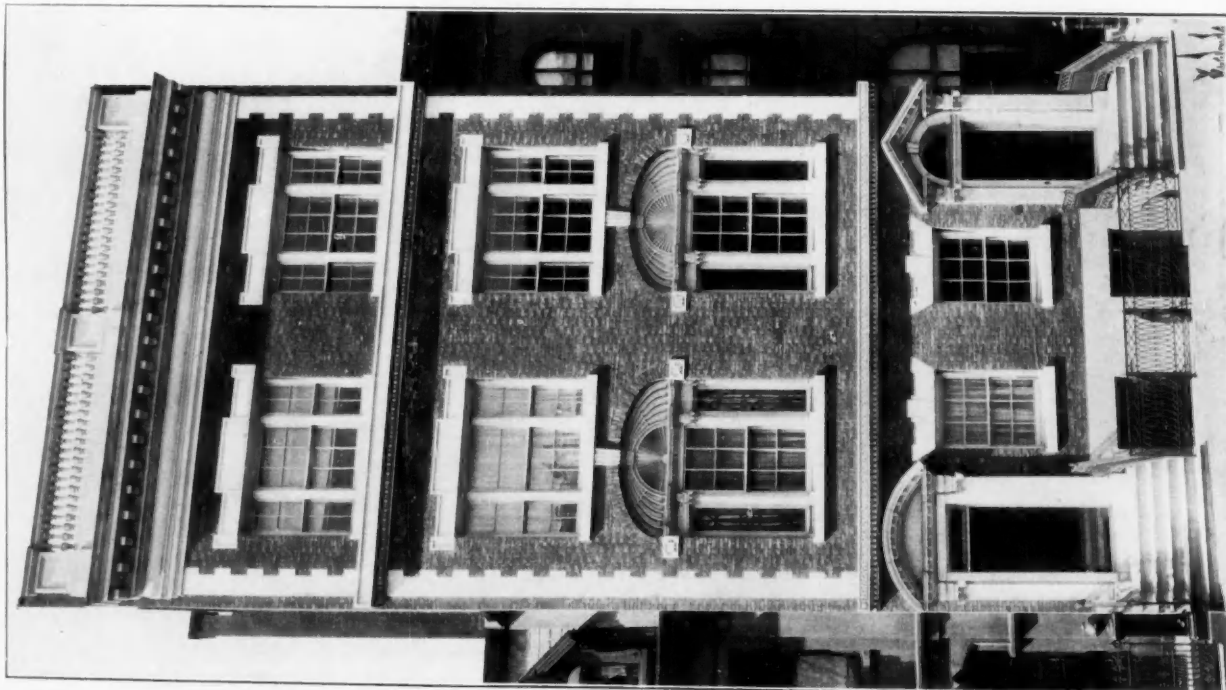
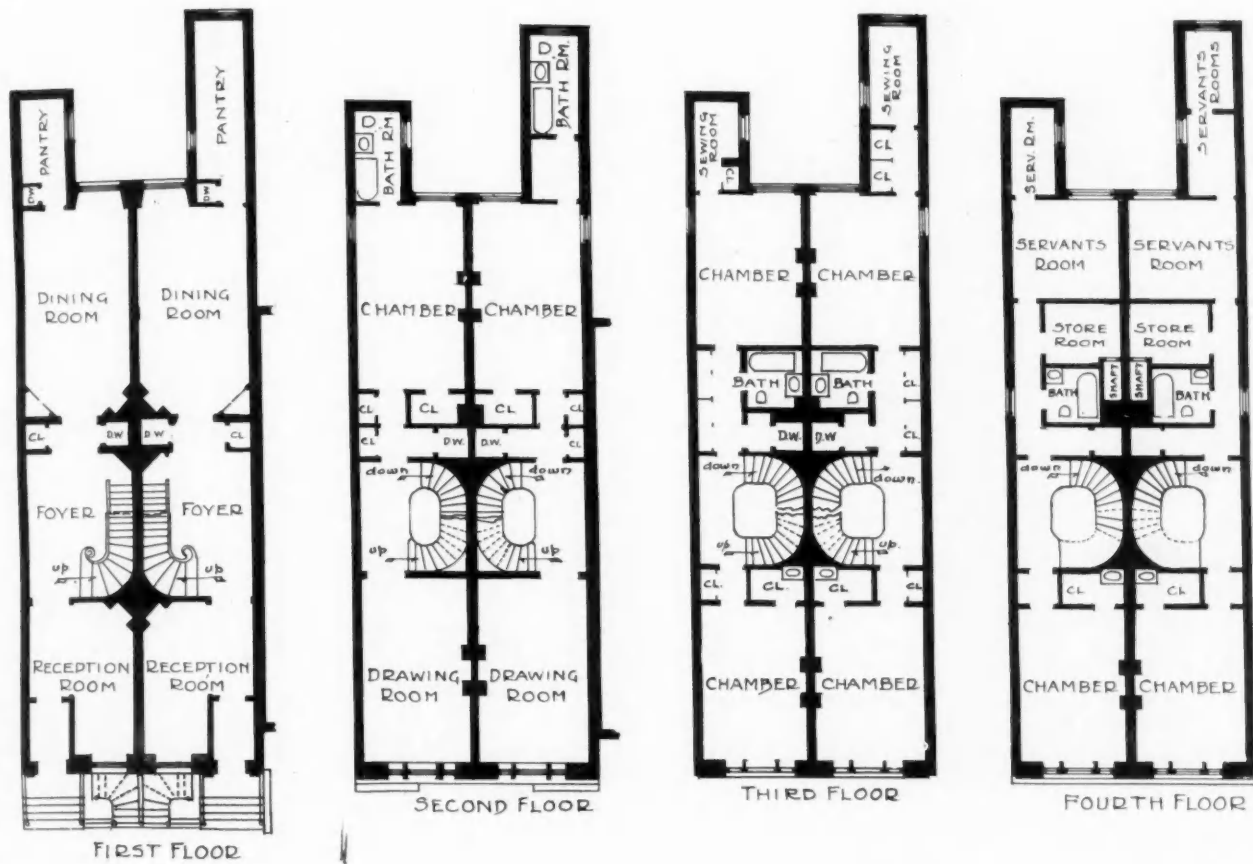
NEW YORK CITY

HOUSES.

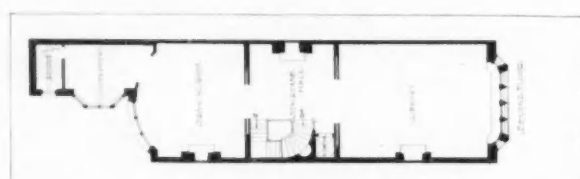
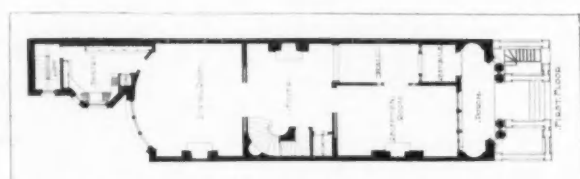
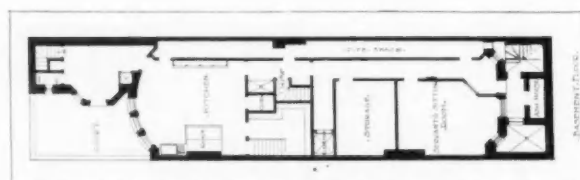
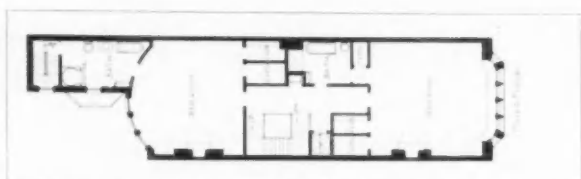
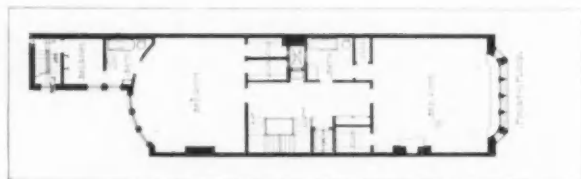
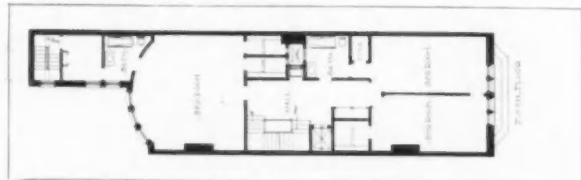
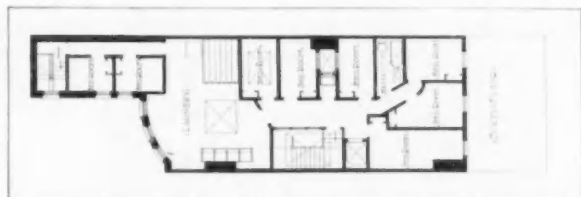
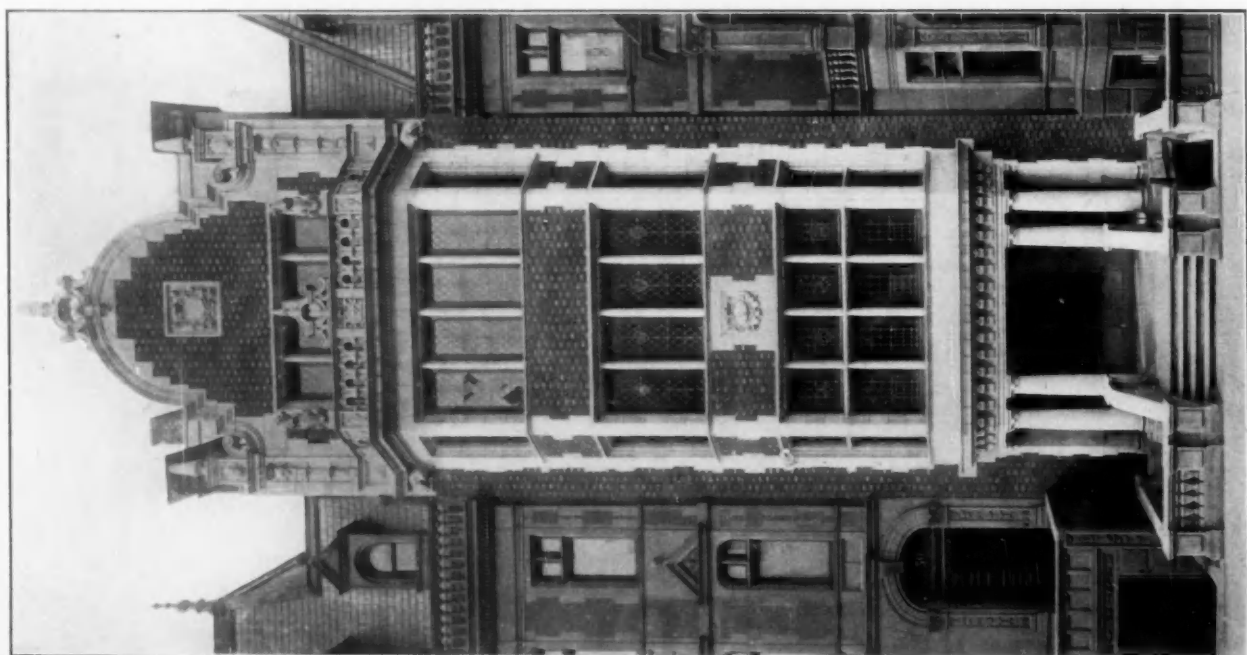


WINTERS BROS. & CO. N.Y.





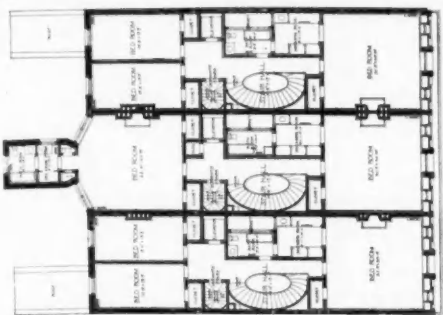
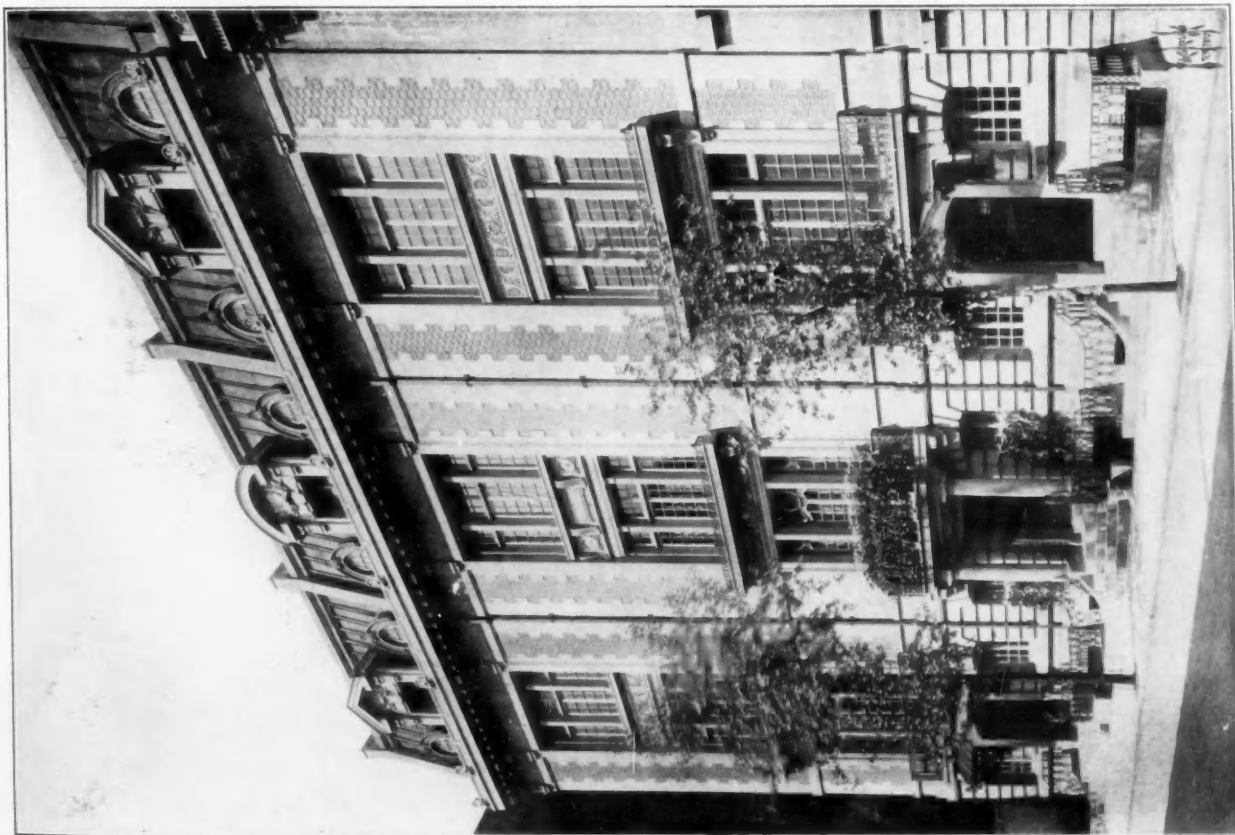
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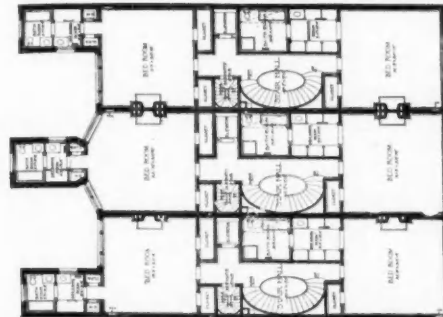
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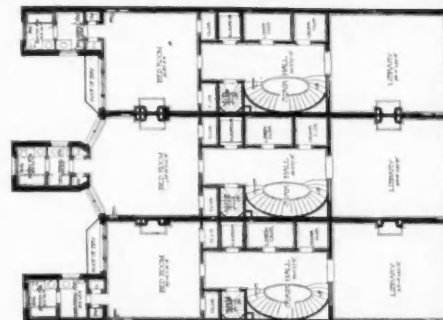
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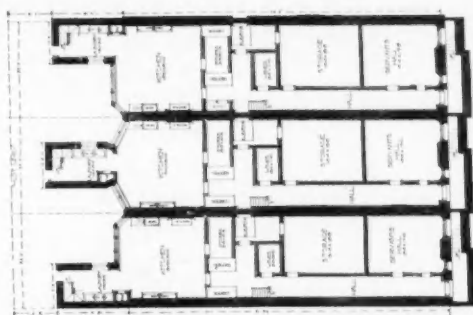
FOURTH FLOOR PLAN



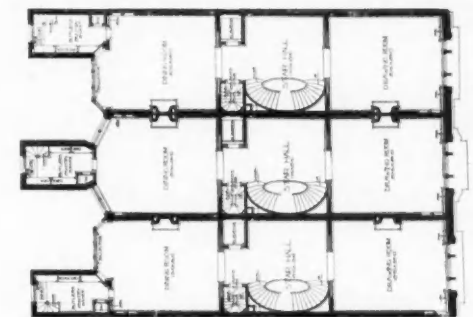
THIRD FLOOR PLAN



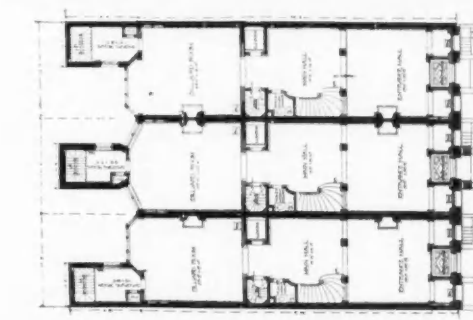
SECOND FLOOR PLAN



BASEMENT FLOOR PLAN

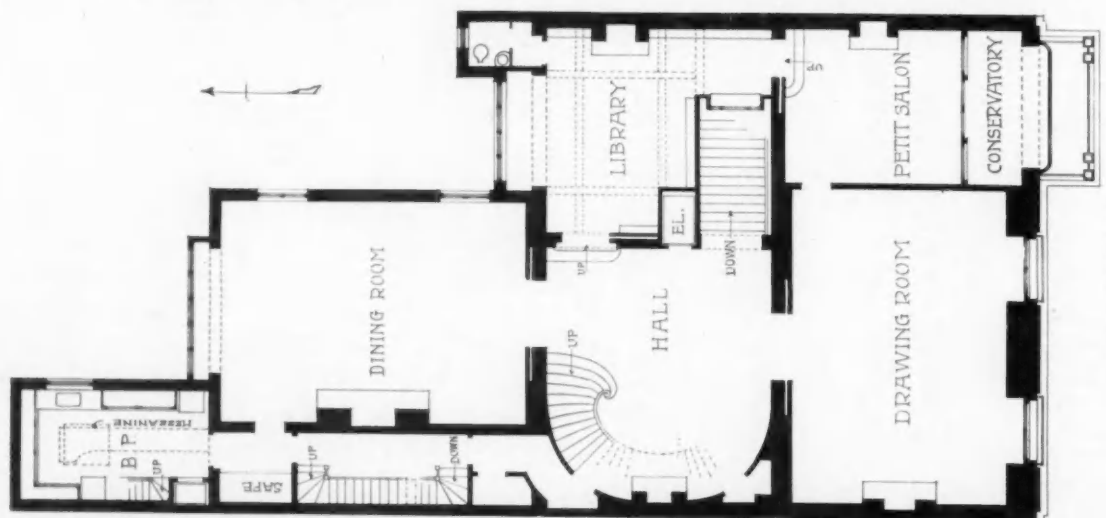


FIRST FLOOR PLAN

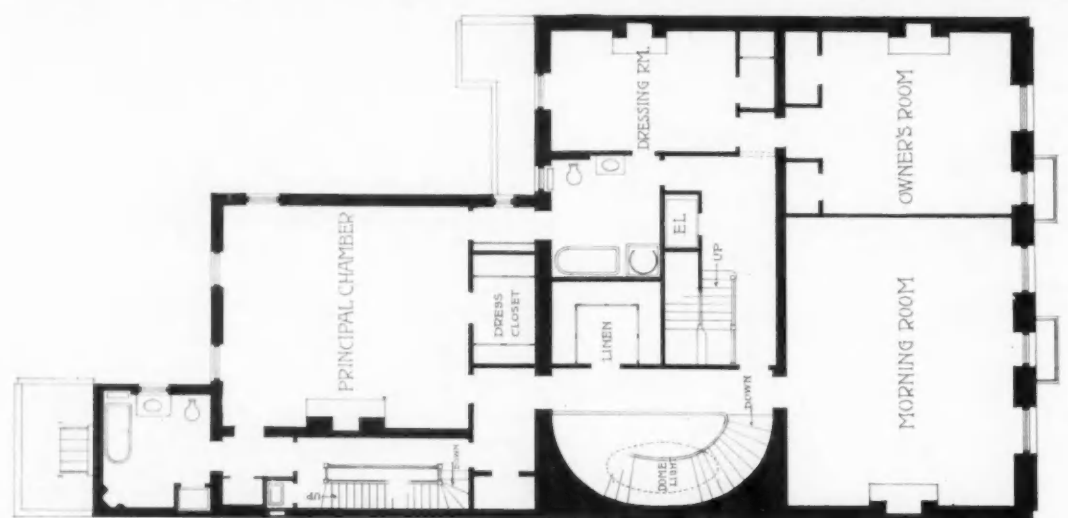


ENTRANCE FLOOR PLAN

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YORK & SAWYER, ARCHITECTS.
NEW YORK CITY HOUSES

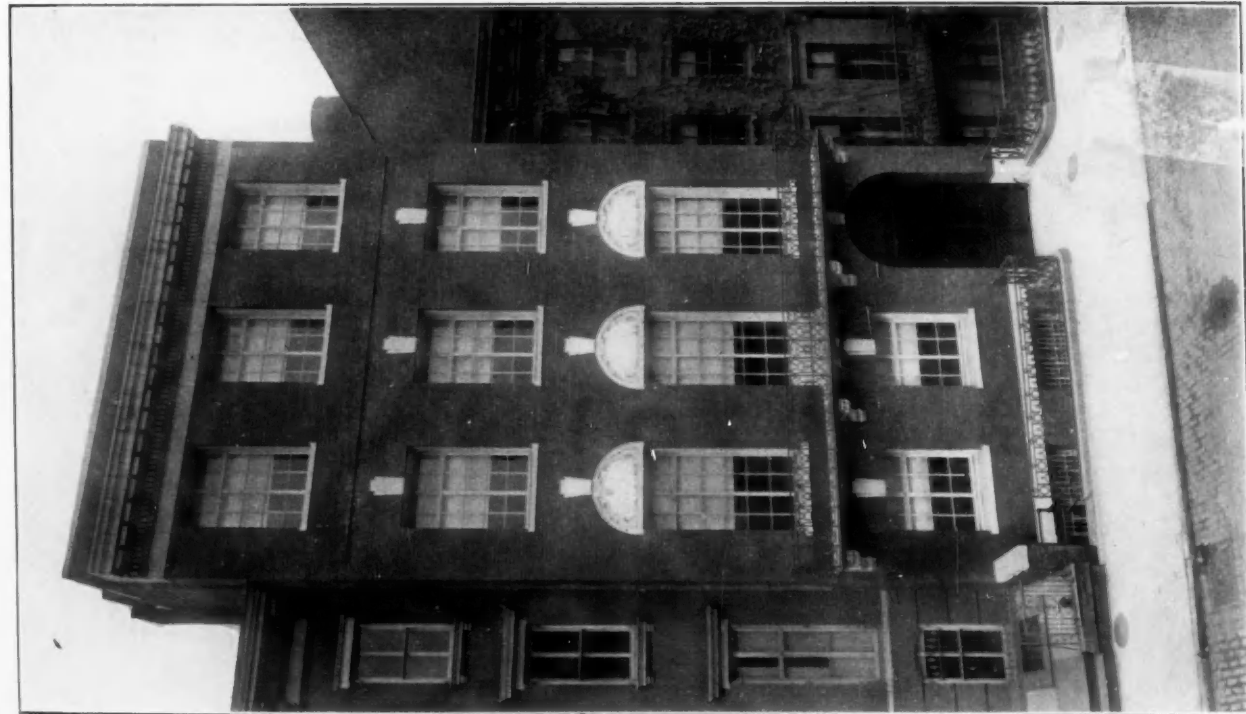


FIRST STORY.

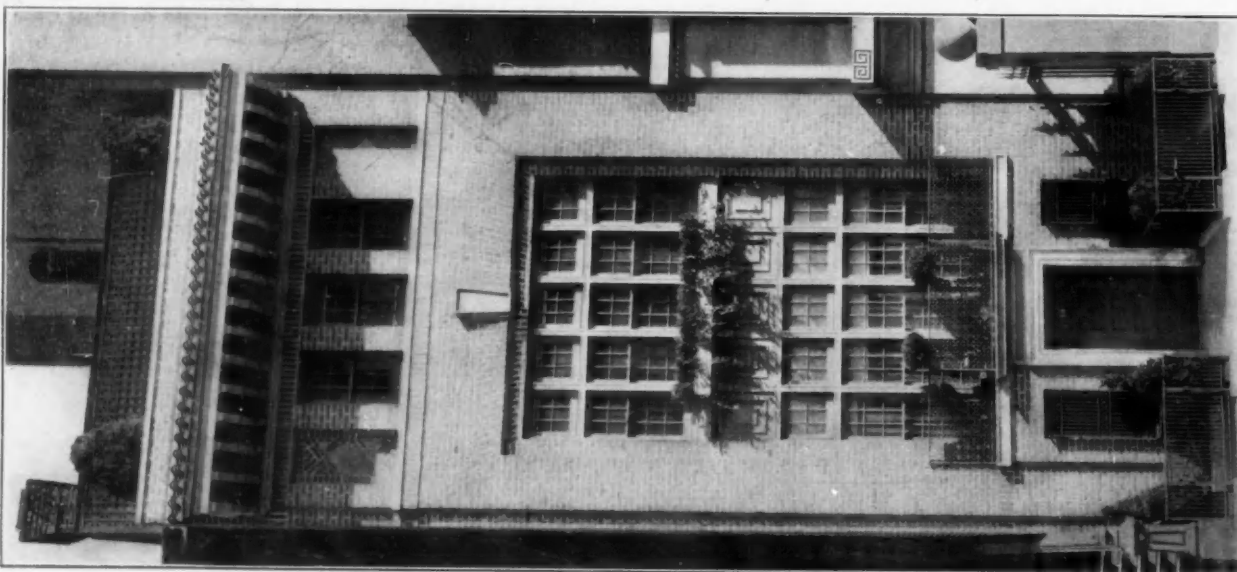


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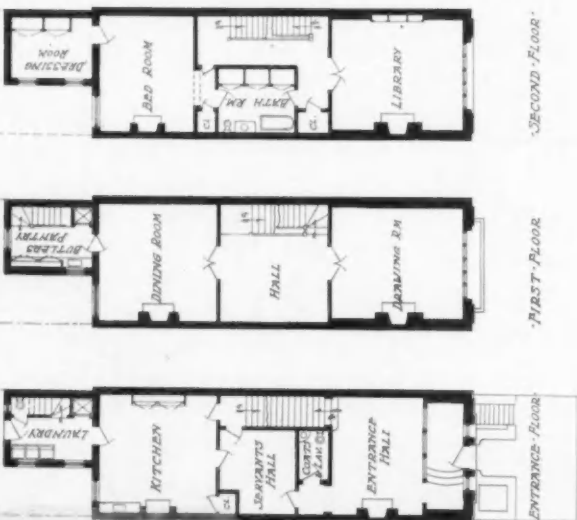
25 AND 27 EAST 51ST STREET.
WILLIAM STROM, ARCHITECT.
NEW YORK CITY HOUSES.



EAST 40TH STREET, NEAR PARK AVENUE.
ERNEST FLAGG, ARCHTCT.
NEW YORK CITY HOUSES



59 EAST 77TH STREET.

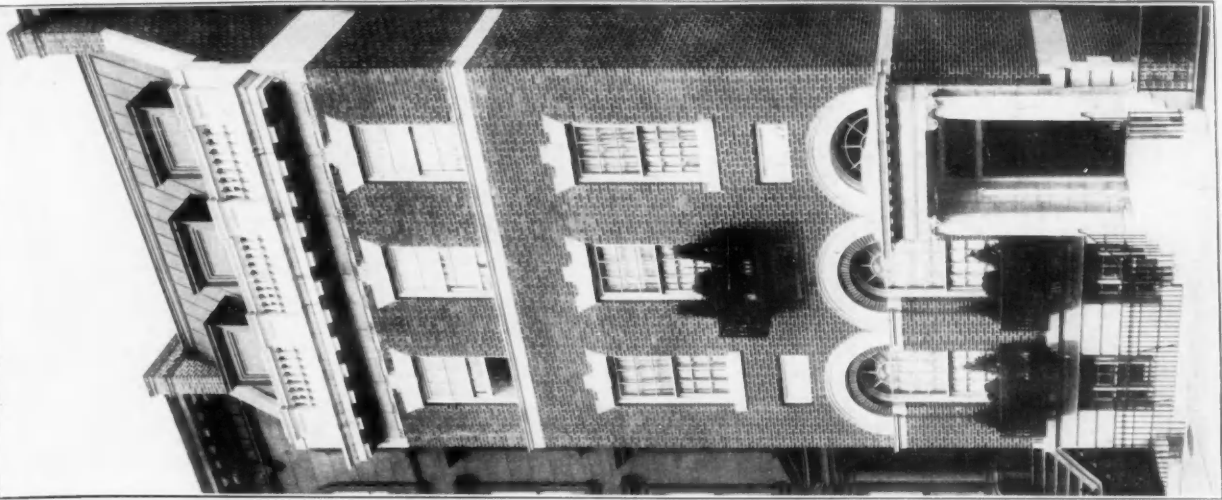


62 EAST 80TH STREET

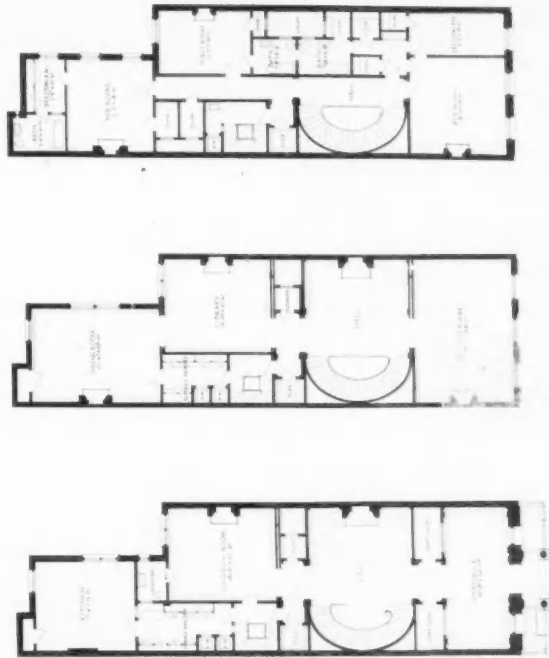
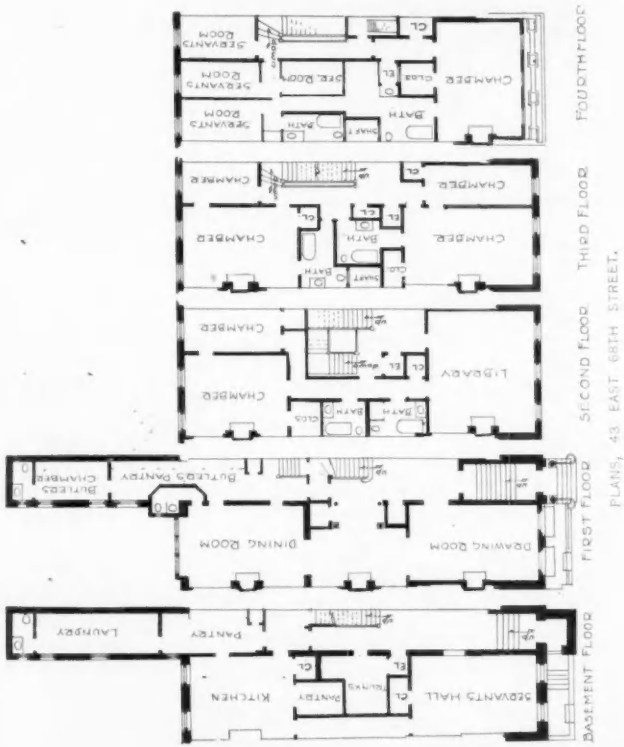


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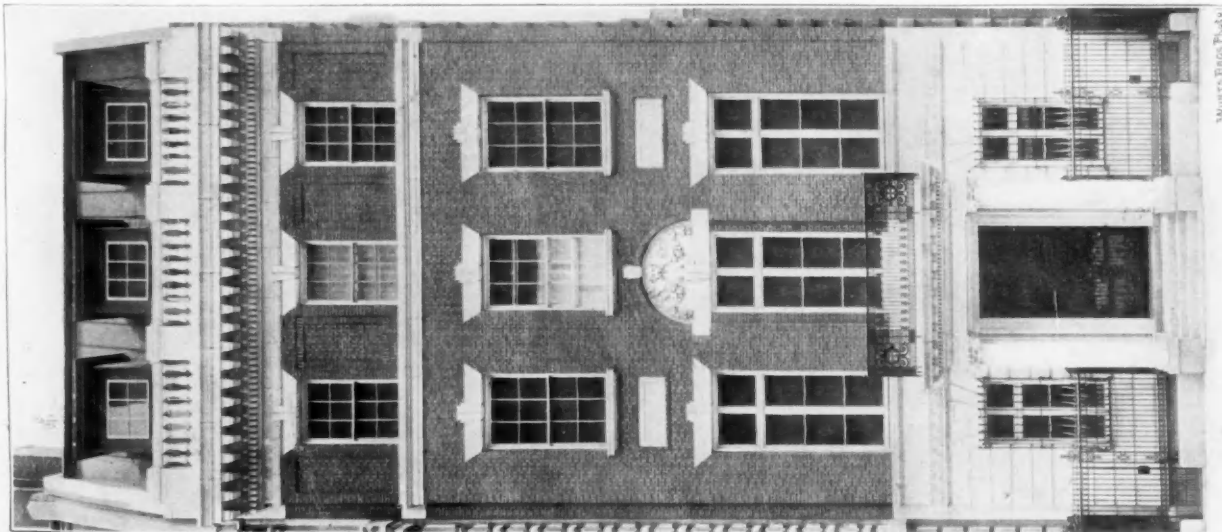
ALBRO & LINDBERG, ARCHITECTS.
NEW YORK CITY HOUSES.



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TRACY & SWARTWOUT, ARCHITECTS.

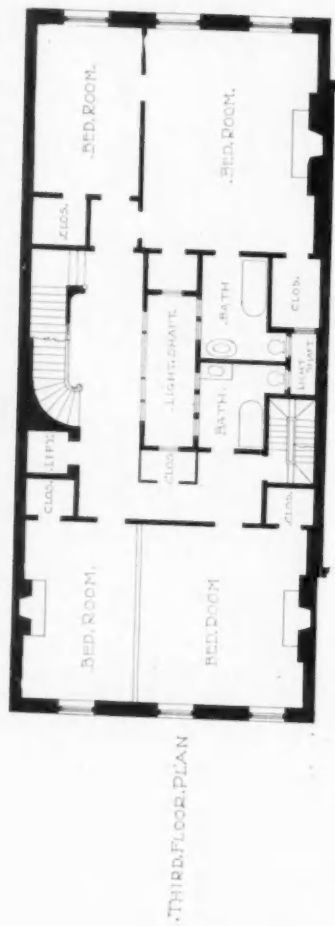
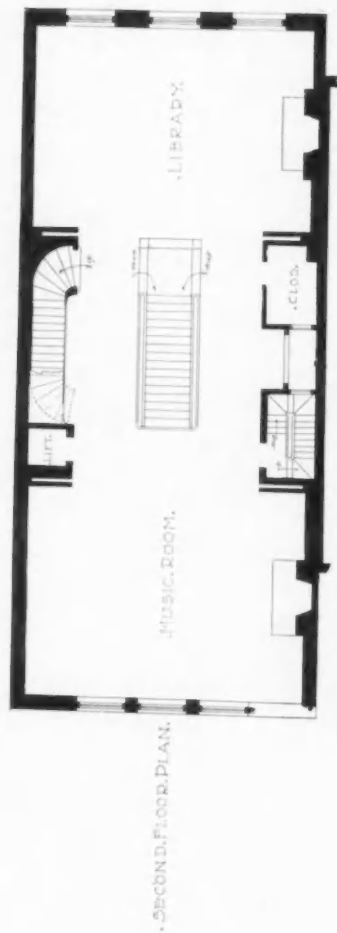
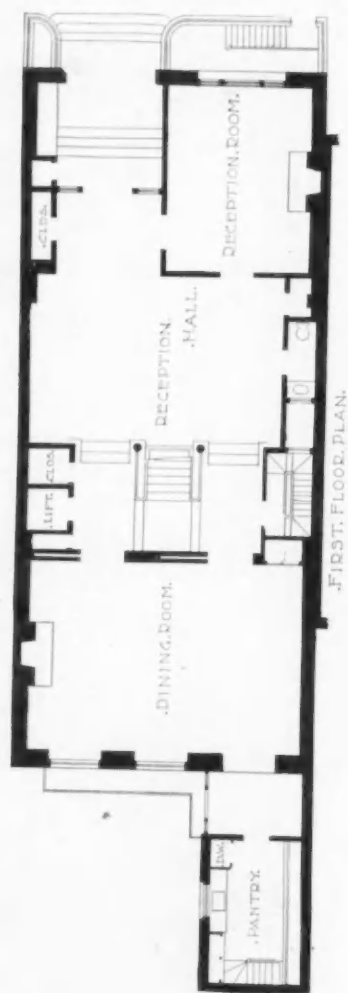


FIRST, SECOND AND THIRD FLOORS, HOUSE, 43 EAST 68TH STREET.

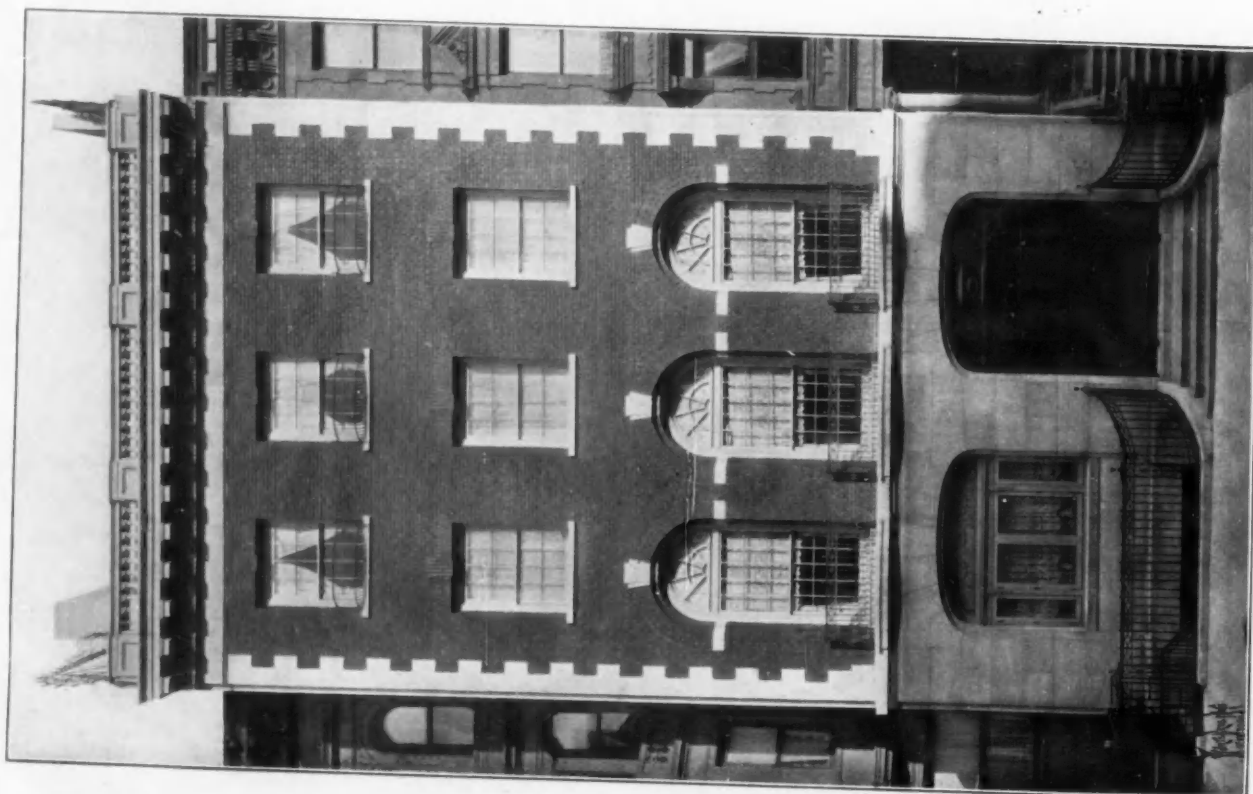


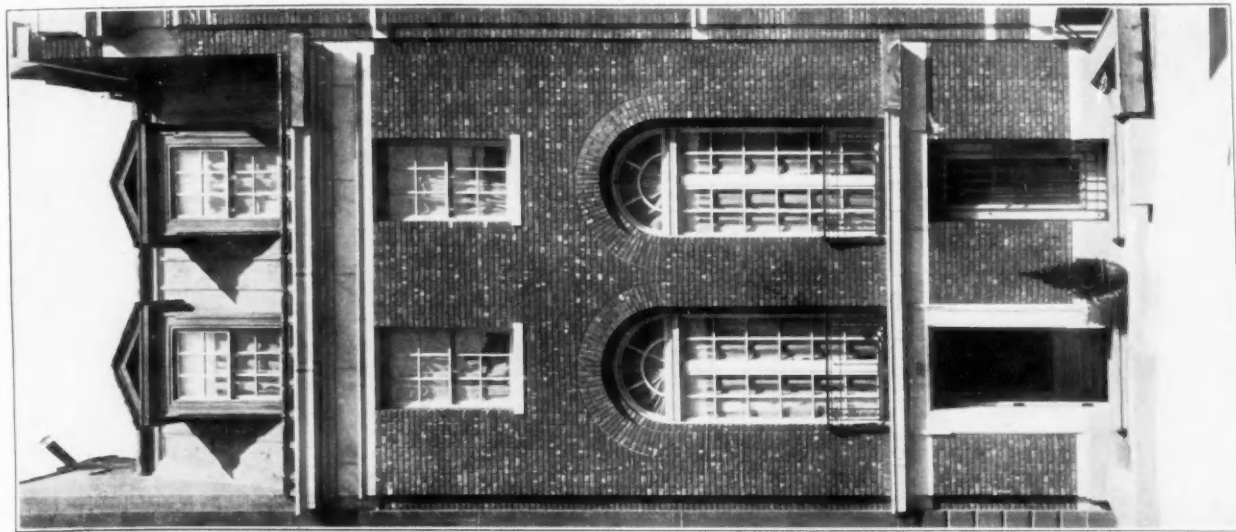
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TRACY & SWARTWOUT, ARCHITECTS.

NEW YORK CITY HOUSES.



33 EAST 74TH STREET.
GROSVENOR, ATTERBURY, ARCHITECT.
NEW YORK CITY HOUSES.

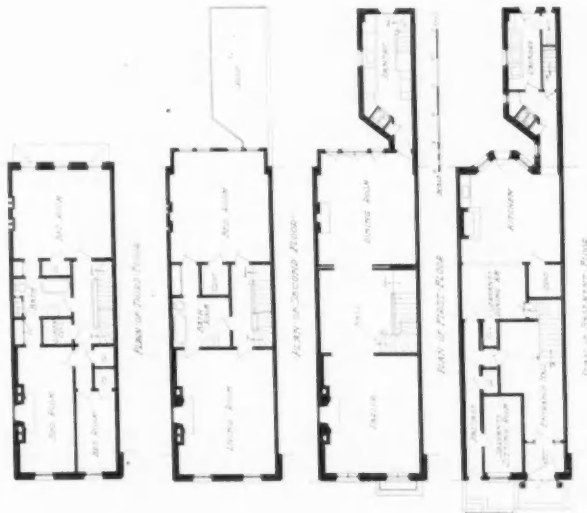




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ROBBINS & DAKMAN, ARCHITECTS.

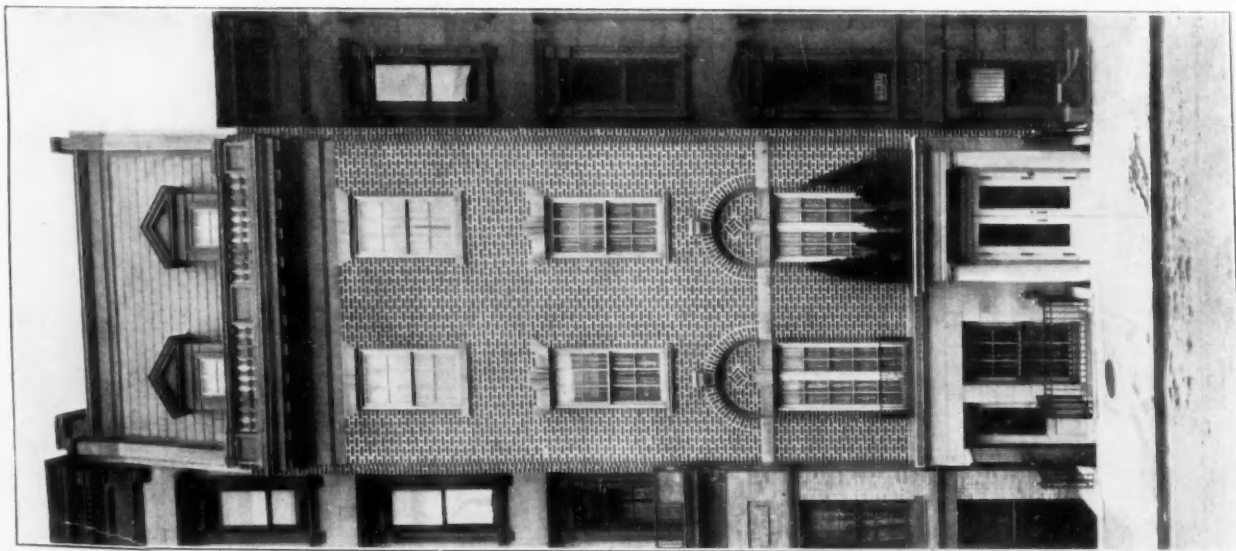


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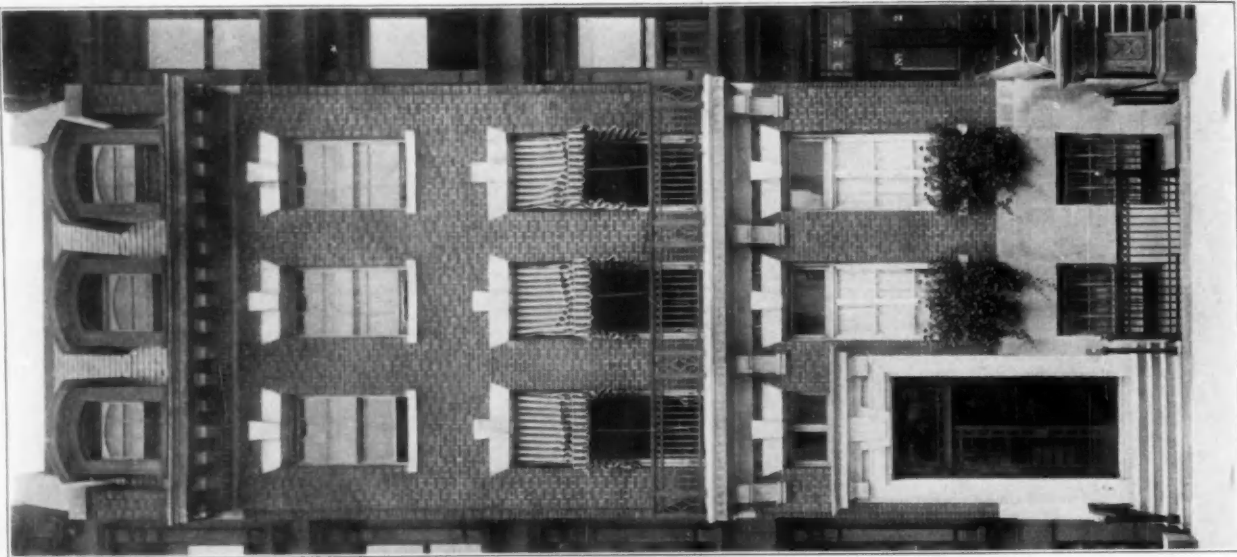


120 EAST 55TH STREET.

NEW YORK CITY HOUSES.



120 EAST 55TH STREET.
LORD & HEWLETT, ARCHITECTS.



4 EAST 81ST STREET.

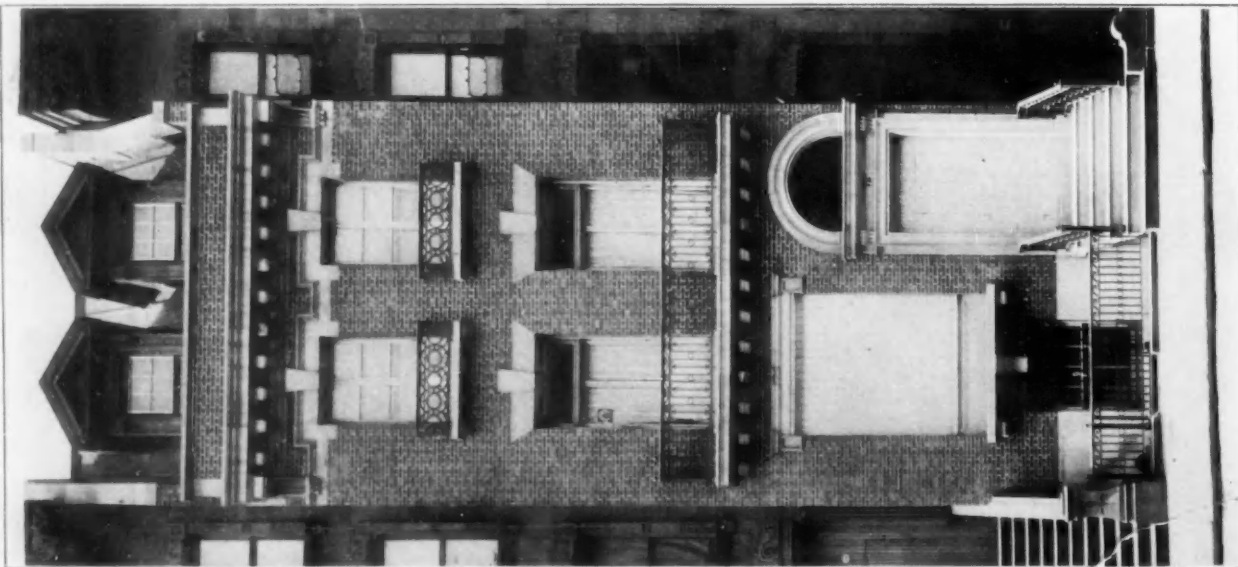


FIRST FLOOR, SECOND FLOOR,
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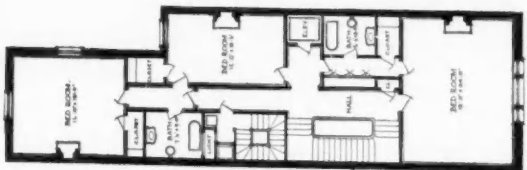
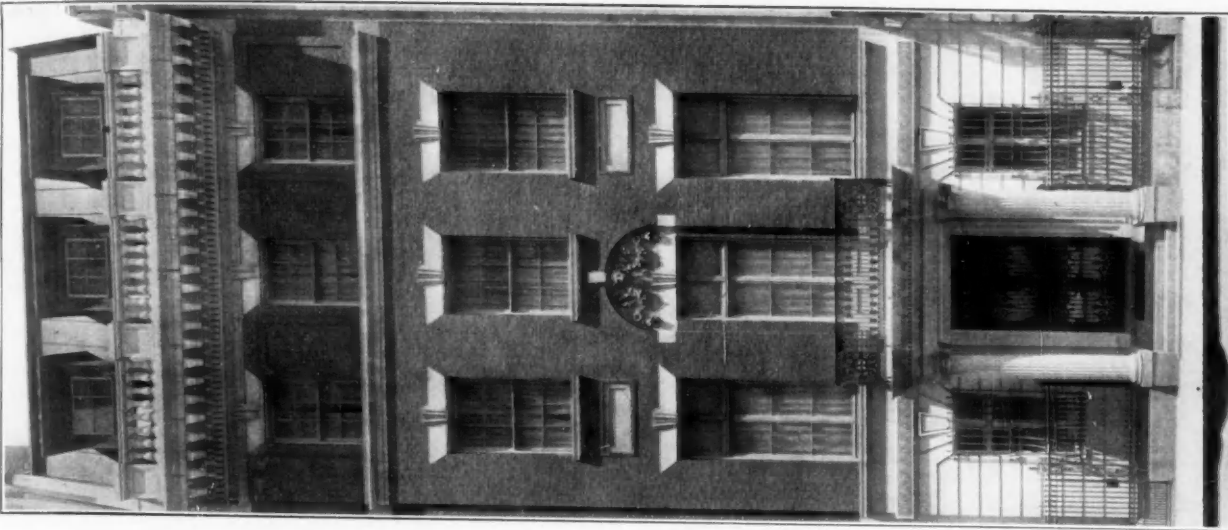
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FOSTER, GADE & GRAHAM,
ARCHITECTS.

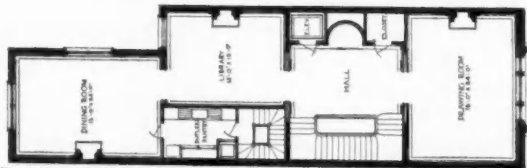
NEW YORK CITY HOUSES.



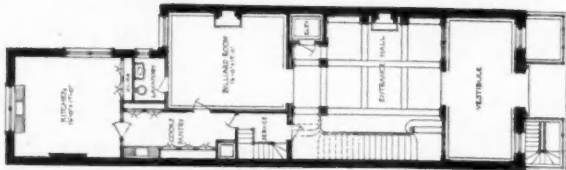
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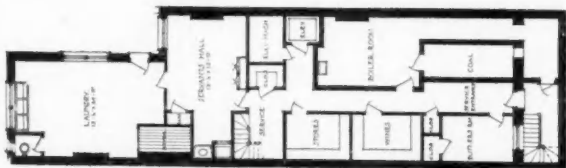
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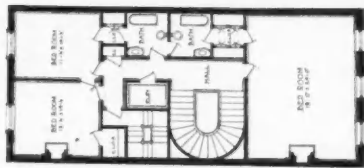
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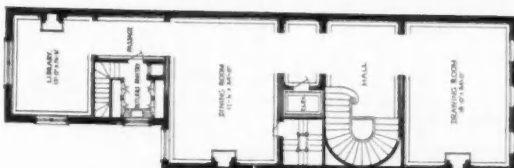
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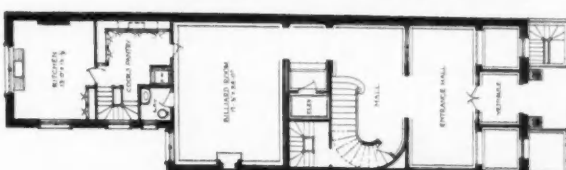
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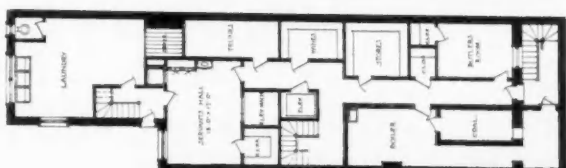
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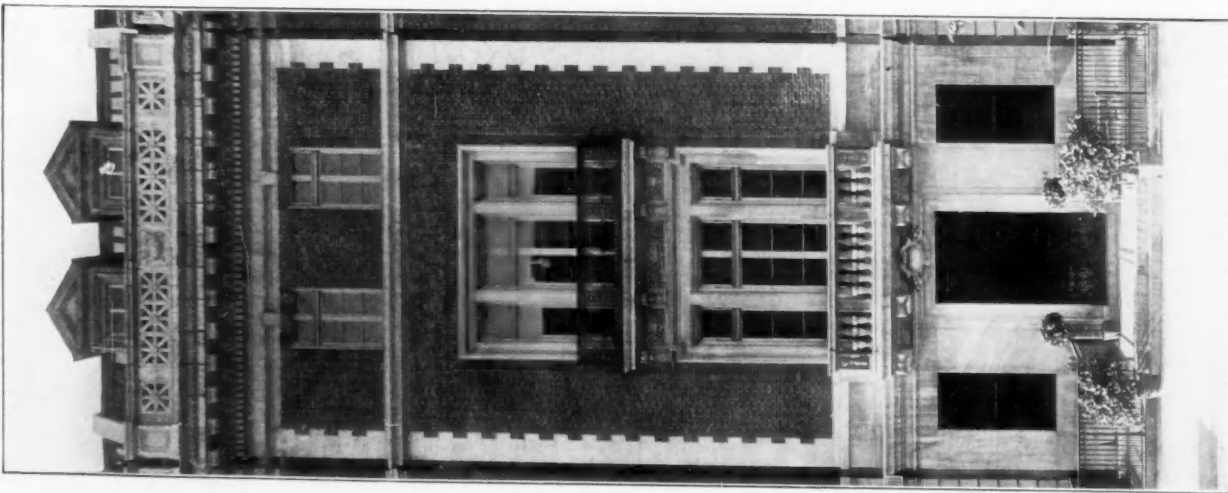
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FIRST FLOOR.



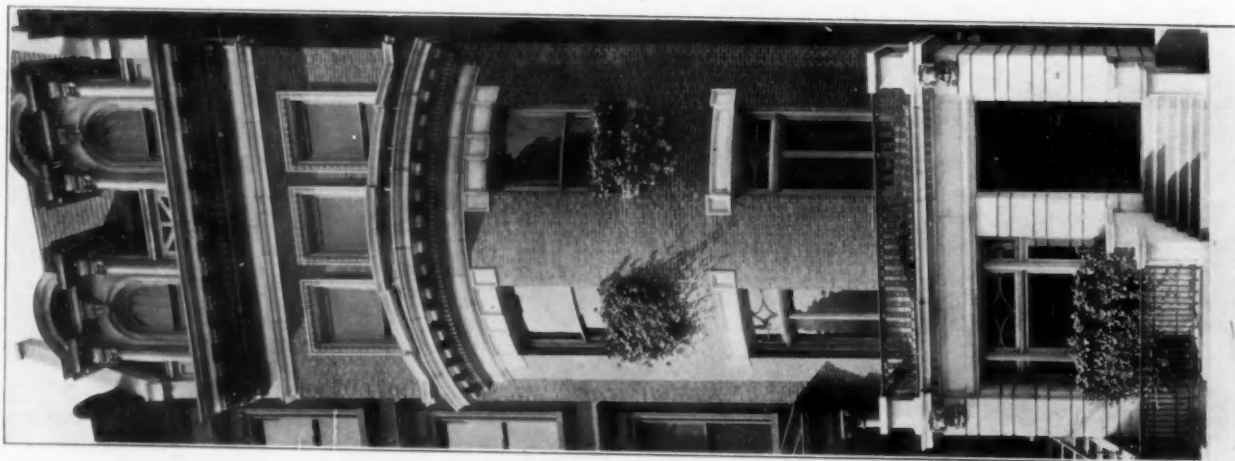
BASEMENT.



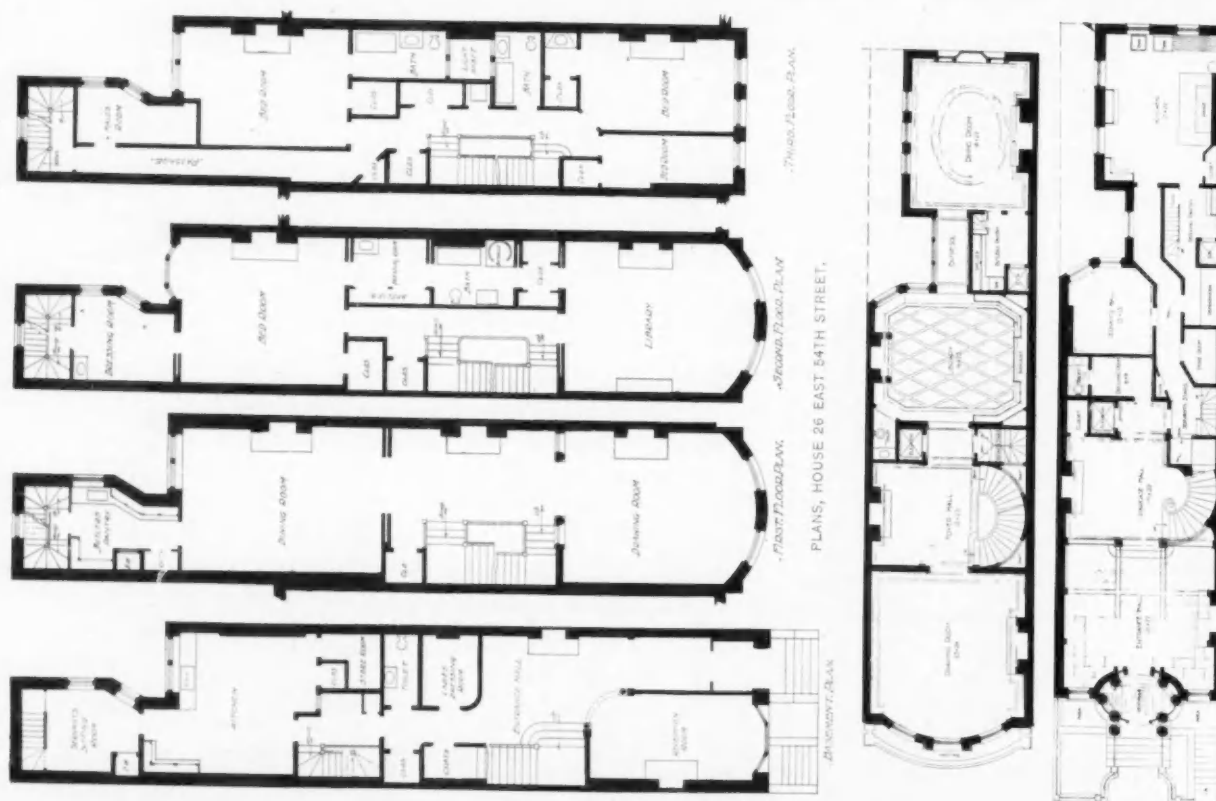
TWO HOUSES IN BLOCK 18 TO 52 WEST 74TH STREET, WITH TYPICAL PLANS.

PERCY GRIFFIN, ARCHITECT.

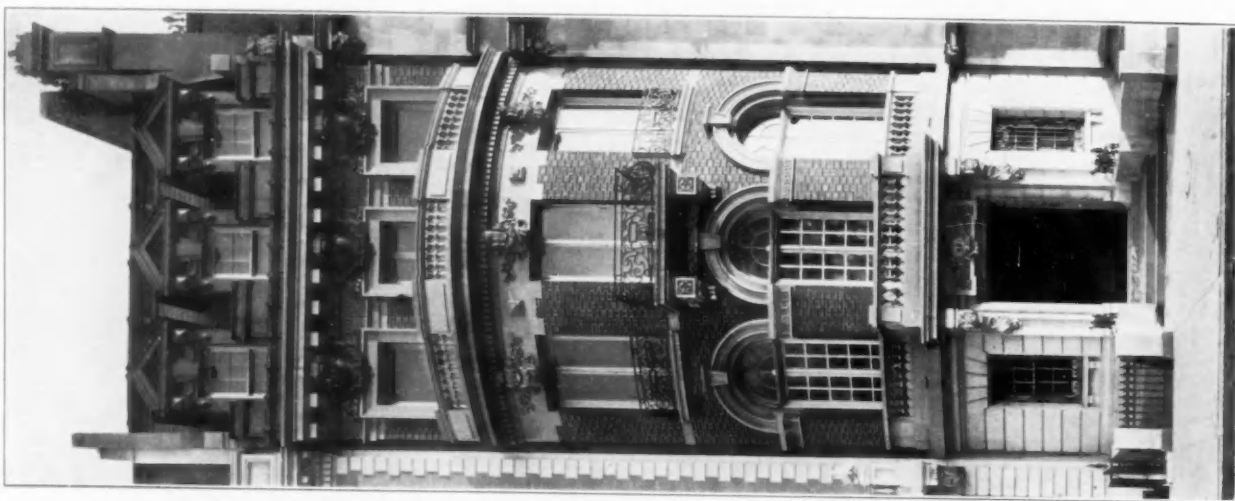
NEW YORK CITY HOUSES.



26 EAST 54TH STREET.
C. P. H. GILBERT, ARCHITECT.



FIRST AND SECOND FLOOR PLANS, HOUSE, 992 FIFTH AVENUE,
NEW YORK CITY HOUSES.



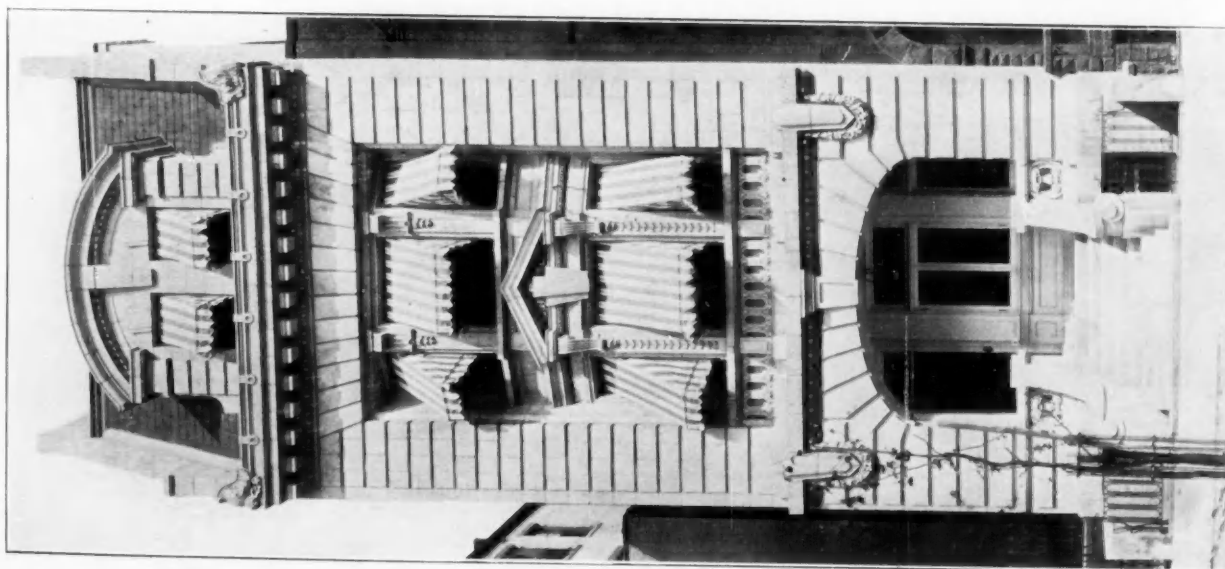
992 FIFTH AVENUE.
GEORGE A. FREEMAN, ARCHITECT.



123 EAST 730 STREET.
ROBERTSON & POTTER, ARCHITECTS.



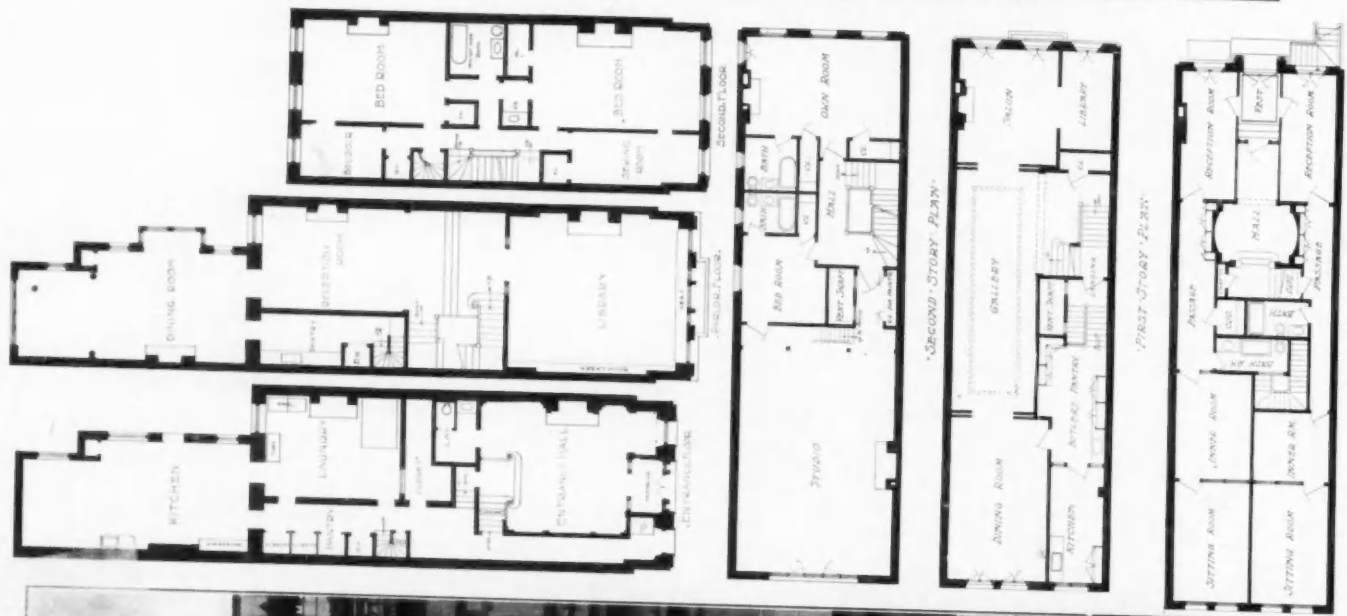
NEW YORK CITY HOUSES.



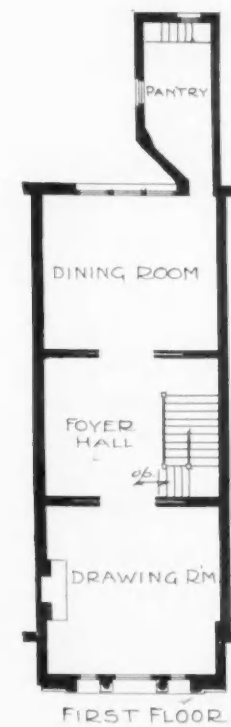
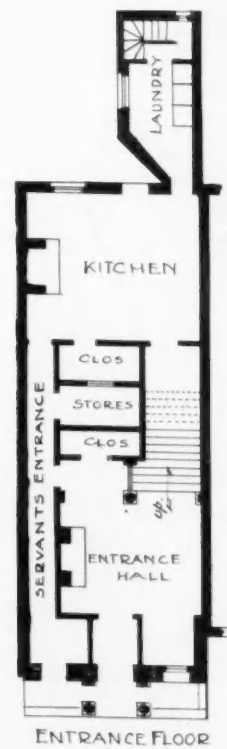
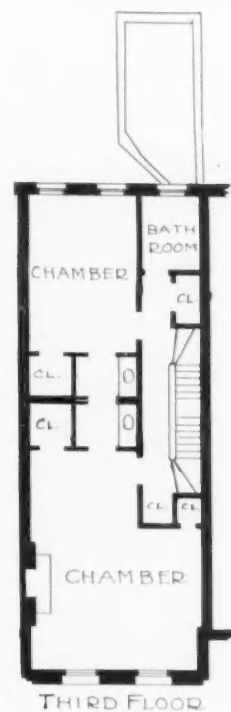
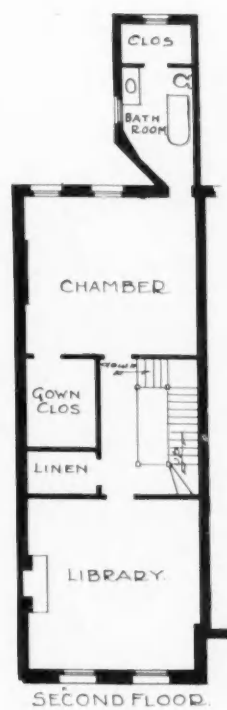
232 WEST END AVENUE.
HERTS & TALLANT, ARCHITECTS.



17 WEST 56TH STREET.
A. N. ALLEN, ARCHITECT.
(PLANS AT TOP OF PAGE.)



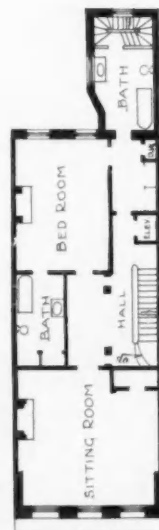
27 EAST 85TH STREET.
CHARLES E. BIRGE, ARCHITECT.
(PLANS AT BOTTOM OF PAGE.)



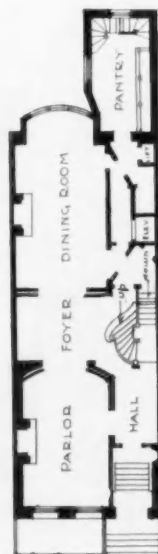
66 EAST 81ST STREET.
PICKERING & WALKER, ARCHITECTS.
NEW YORK CITY HOUSES.



THIRD FLOOR PLAN.



SECOND FLOOR PLAN.

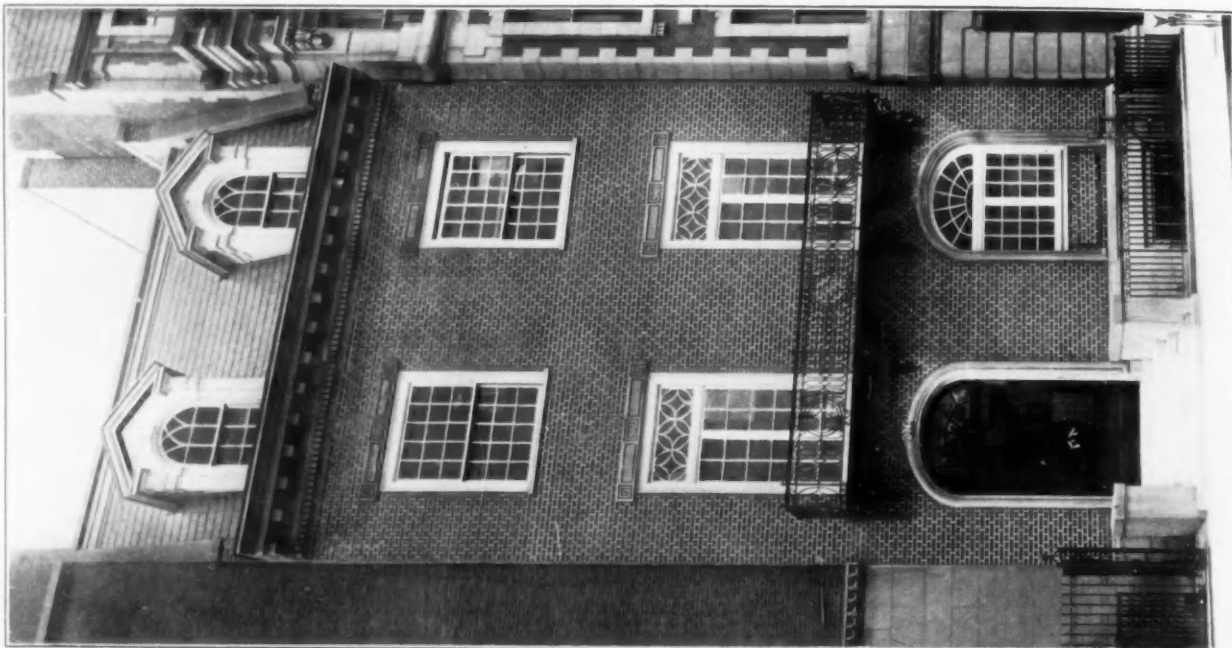


FIRST FLOOR PLAN.

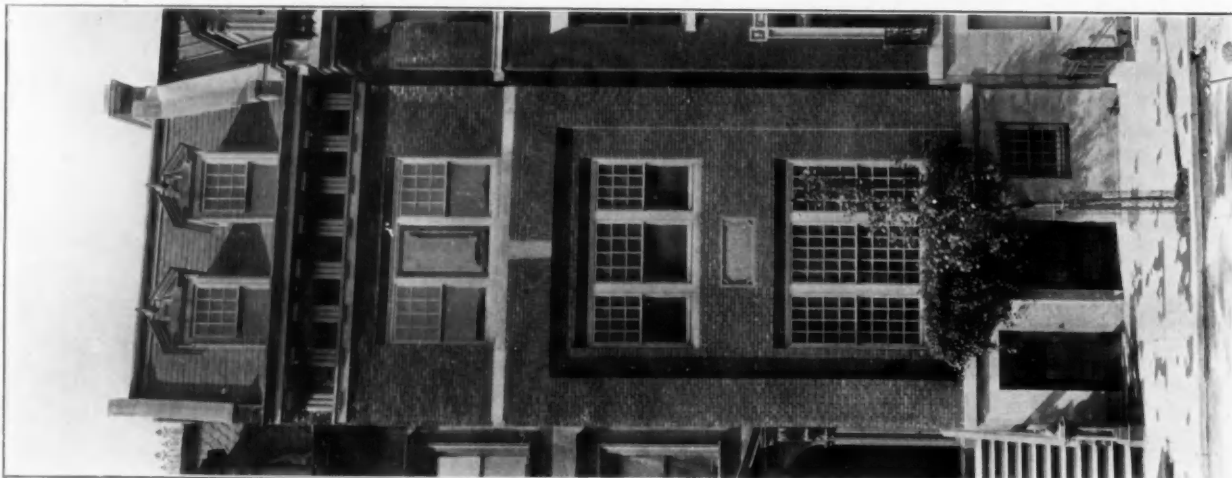
18 EAST 54TH STREET.
 PALMER & HORNBOSTEL, ARCHITECTS.
 NEW YORK CITY HOUSES.



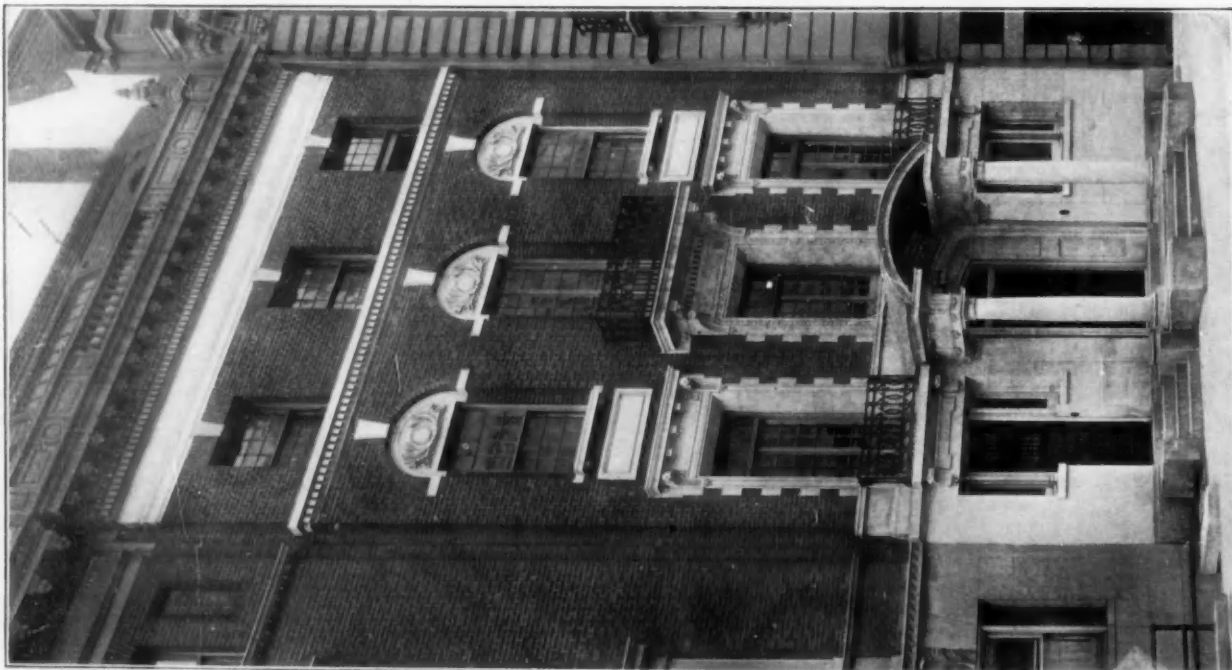
45 AND 47 EAST 53D STREET.
S. EDSON GAGE, ARCHITECT.
NEW YORK CITY HOUSES.



23 EAST 40TH STREET.



110 EAST 70TH STREET.



34 EAST 50TH STREET.

NEW YORK CITY HOUSES.

sharp angle. The whole floor is framed and balanced upon a central pivot.

The designing of scenery is very largely in the hands of specialists who have grown up in the business. Only rarely is scenery designed by an architect or one who has made it an artistic study. The late E. W. Godwin of London was an architect who did a lot of very interesting scenery for Henry Irving. Mr. Frank Chouteau Brown has designed some very creditable scenery for the Castle Square Theater, Boston, and there are individual scene painters throughout the country who are thoroughly artistic in temperament and are constantly trying to do good work, but for the most part the scenery which is inflicted upon the public is of very low artistic order. The unrealness of the

stage seems to permeate the artists who do the scenery, for seldom are they willing to even copy an architecturally good interior or a bit of real architecture, but they seem to delight in impossible moldings, fantastic constructions and bizarre combinations of color. Only rarely do we find a bit of scenery like the ballroom scene in *Erminie* which Francis Wilson drew pretty straight from the Royal Belvedere Palace at Vienna. The use of operation, in simplicity of construction and in quickness of manipulation our stage settings are way ahead of anything that is done abroad, but we seldom see here the character of artistic work in scenery which is so marked a feature of the productions of houses like the Paris Opera House.

There is one difficulty with our present methods of stage setting. They take too much time, or if hurried, the details of properties, lights, etc., are apt to suffer. There is a device which very materially reduces the time required between acts and offers some most alluring possibilities, namely, the revolving stage. This was tried to a limited extent in the old Madison Square Theatre, New York, and on a small scale was used a good deal for the "living pictures" which had such a vogue a few years since in the vaudeville houses. It has not yet been fully

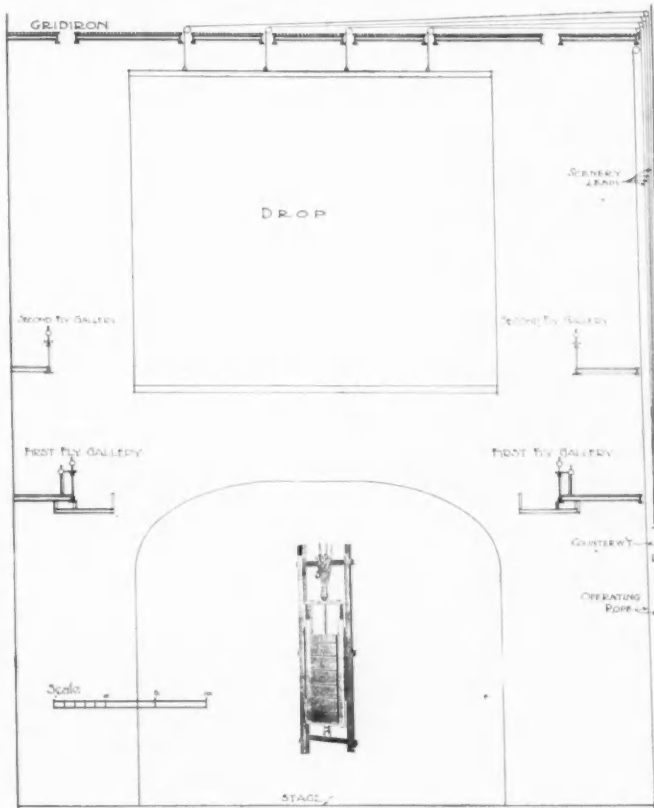


FIG. 11. SECTION SHOWING COUNTERWEIGHT FOR SCENERY.

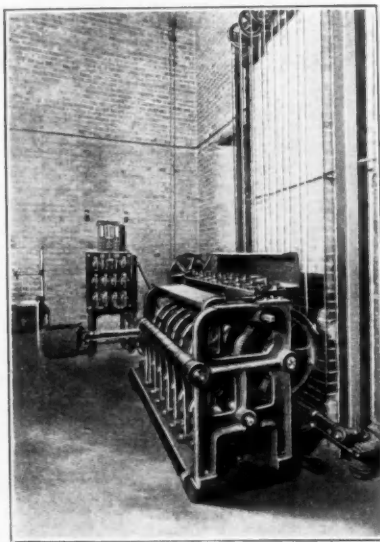


FIG. 12. ELECTRIC SCENE HOISTS.

worked out in this country, but in Germany it has met with such favor and success, that it seems more than probable that it will be adopted into the American stage traditions, and for that reason it deserves notice in this connection. It is really so simple and offers so rational a solution of some of the greatest difficulties of stage setting that for some kinds of plays little can be said against it. One of the best examples of its use is afforded by the stage of the Deutsche Theater, Berlin, a sketch plan and section of which are given herewith (Figs. 15 and 16) largely from memory.

The revolving portion of stage consists of a circular platform about three inches thick, sunk so the top is flush with the main stage floor, and mounted on rollers running on a flat iron track. The plan shows a setting from *Twelfth*

Night, with two garden scenes and two interiors set at the same time, while two more very effective interiors, the Duke's palace and Olivia's house, are formed by simple pleated drapery dropped in front of the set

scenes. The whole platform is rotated by four men, with the leverage of handspikes thrust into sockets in the floor. Towards the audience the scene is framed by adjustable inner tormentors, and to change a scene the whole stage is simply rotated, in full view of the audience. The lighting is one of the specially good features of this device. Of course sky borders would be out of the question, and rows of border lights could not be used to advantage unless they could be masked by borders. Consequently, for the outdoor effects, a plain white panorama cloth is hung so as to entirely encircle the stage, and is illuminated by four arc lamps hung as shown by the sketch. Behind the inner tormentor drapery is a light bridge with a single row of incandescent border lights, also some amber spot lights. The white back cloth under the arc light takes a pale

blue tone giving a well nigh perfect illusion of outdoor sunlight and blue sky.

One scene can be set and thoroughly studied by the stage manager while an act is before the public, and long

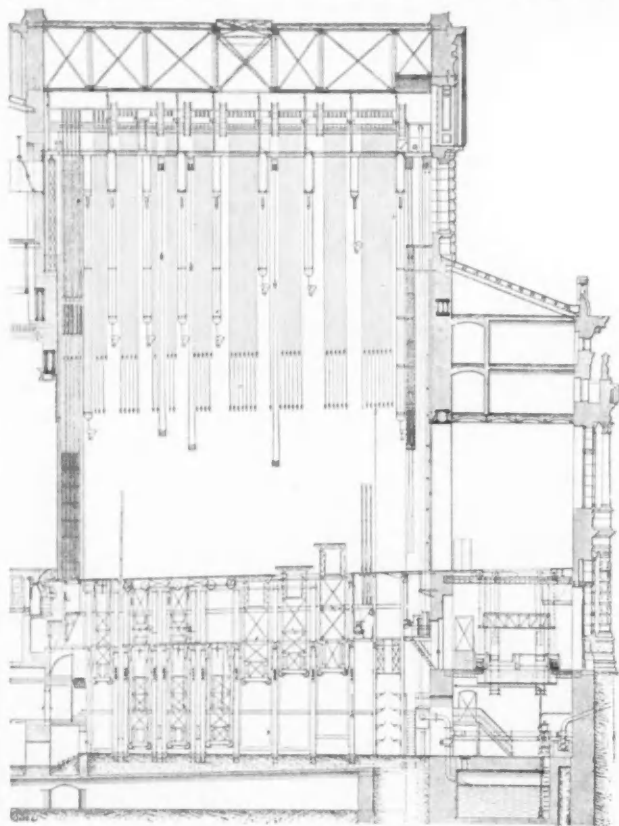


FIG. 13. TRANSVERSE SECTION OF STAGE, COURT THEATER, VIENNA.

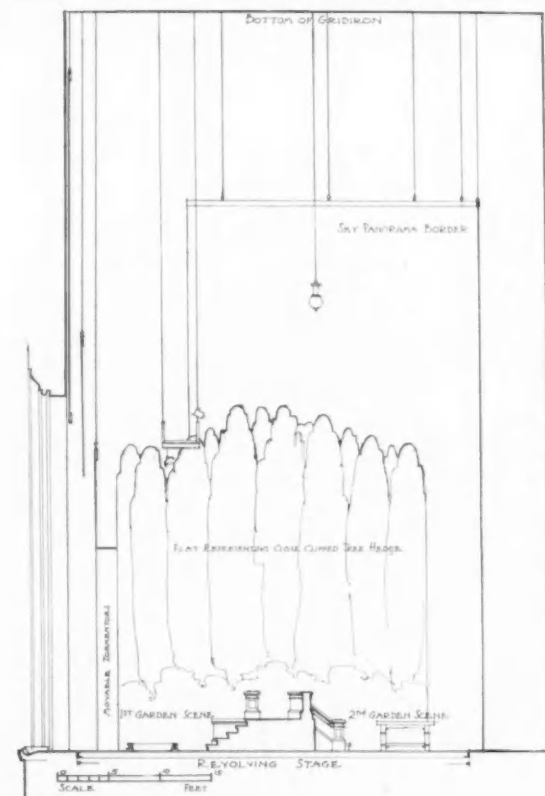


FIG. 15. SKETCH SECTION, REVOLVING STAGE, DEUTSCHE THEATER, BERLIN.

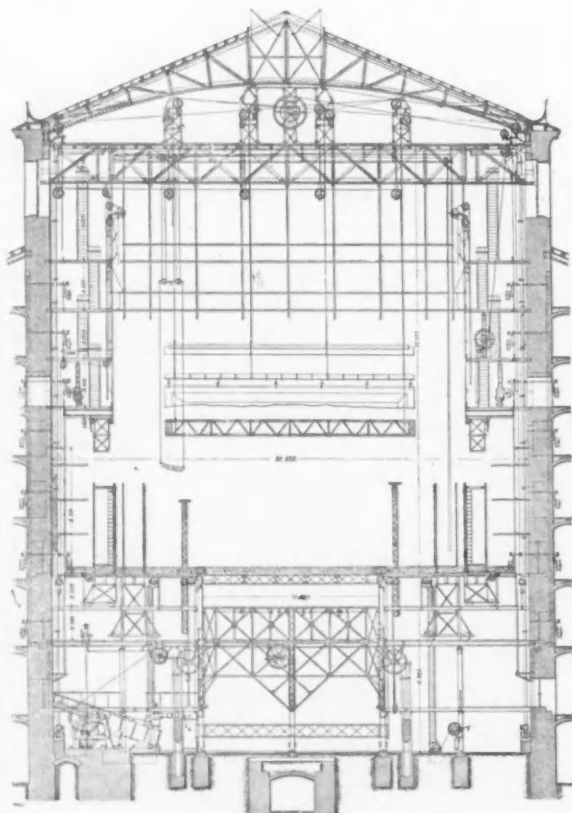
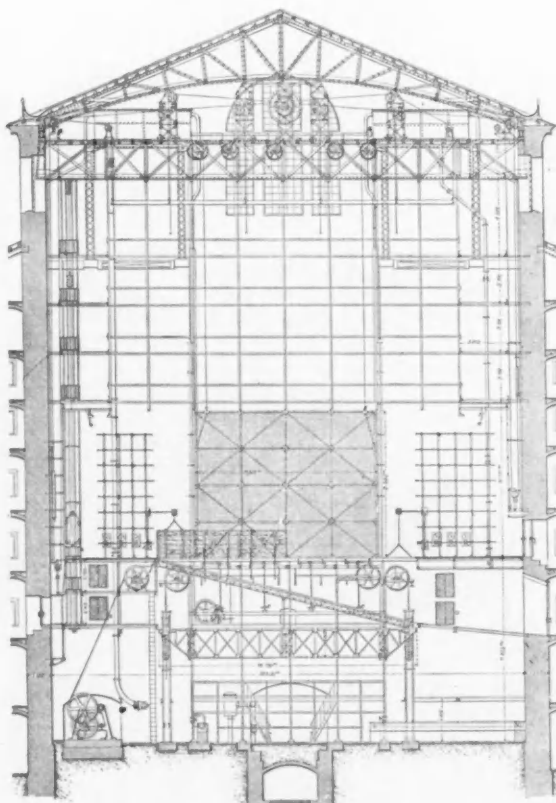


FIG. 14. CROSS SECTION OF STAGE, COURT THEATER, VIENNA.



waits can be absolutely avoided by this device. It allows a freedom in scene setting and design which is not possible with the ordinary system, and the cost is but trifling, while in principle it is extremely simple. It is not applicable to all stage conditions, but for small dramas and comedies, Shakespeare, and, to a more limited extent, for some operas it certainly offers great possibilities. A stage equipped with a revolver could at the same time use the ordinary setting, when desired.

THE situation regarding the Equitable's proposed 1000-foot skyscraper in New York City seems to develop uncertainties. The plans have been approved by the New York City building department; but the *Tribune* announces that the protests of thousands of the Equitable's policy holders are causing the officers of the society to hesitate before putting \$10,000,000 of the policy-holders' money into such a structure. "Some of the largest policy holders," says that paper, "have submitted to the society as an alternative proposal that of selling the present building and site, which are valued at anywhere from \$15,000,000 to \$20,000,000, and of then erecting a building much further uptown, at a cost for site and construction of about \$5,000,000 or \$6,000,000, the rest of the money to be distributed among the policy holders. This, it is argued, would appeal to all that conservative element of the population who constitute the principal body of insured, and would prove a far more effective advertisement for the society than any 100-foot-high building."

THE new Sing Sing prison, which New York State is to build in the highlands of the Hudson, is to be the

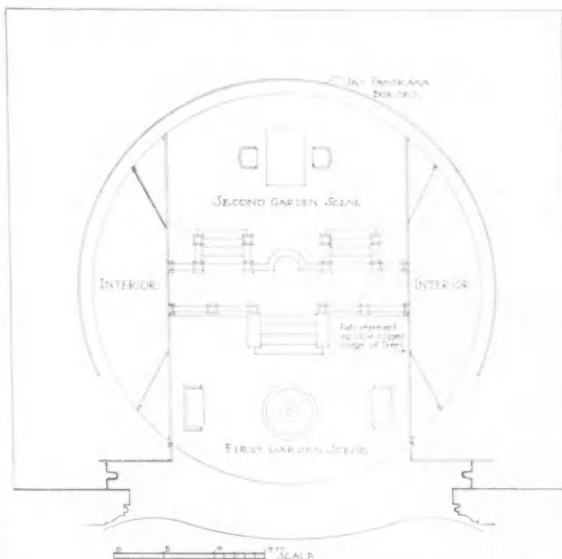
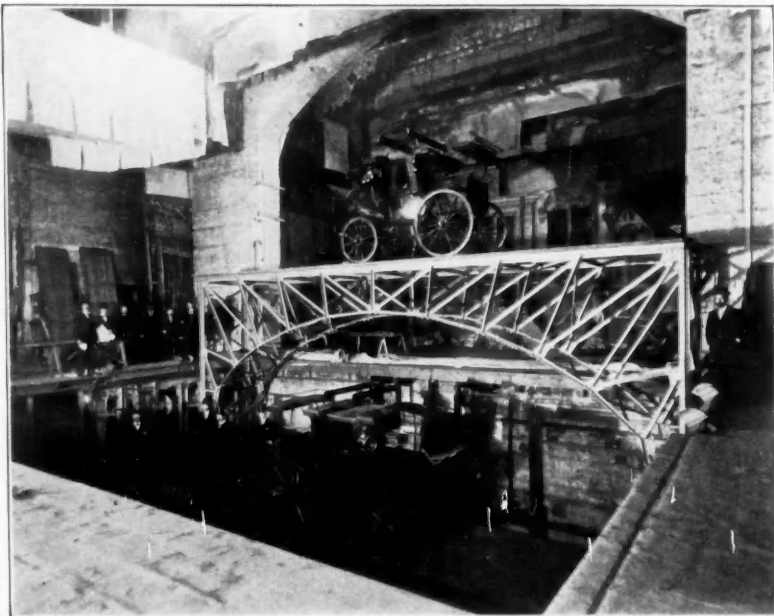


FIG. 16. SKETCH PLAN OF REVOLVING STAGE OF DEUTSCHE THEATER, BERLIN.

been deemed quite out of order in the old days. How far an advance is to be marked appears in the fact that enameled steel is to be used in the cells and all interior walls will be of porcelain enamel, the same as bath tubs. Each cell will contain a water-closet, wash basin, running water, one bunk for prisoner and steel case for papers. The dimension of the cell will be 6 by 10 feet on the floor and 8 feet 6 inches in height.



ELECTRIC BRIDGE, COVENT GARDENS THEATER, LONDON.

THE French Government has at last decided to put the lower fortifications of Mont St. Michel under the category of "historic monuments" and to be guarded as such. This will preserve that unique and much visited island against the encroachments of hotels and cafés that have proposed various schemes to improve the entrances to their property at the expense of the beauty of the islands.

EXPERTS anticipate the timber famine for the industrial world thirty years hence. Other prophets foresee an end to the coal supply and of iron. Happily there are other materials of the earth the supply of which is not threatened. The making of an infinitude of clay products will likely go on forever.

The Annual Convention of the Architectural League of America.

THE Annual Convention of the Architectural League of America was held at Detroit, September 17, 18, 19. In addition to the regular business sessions the delegates were entertained at a banquet tendered them by the Detroit Architectural Club which had in charge the arrangements for the convention. Excursions were also made to various points of interest about the city.

Frank C. Baldwin of Stratton & Baldwin, Detroit, was elected president for the ensuing year, and Boston was selected as the place for the next convention.

The following committees were appointed:—Education, Prof. Newton A. Wells, Urbana, Ill.; Prof. C. A. Martin, Ithaca, N. Y.; Herman V. Von Holst, Chicago. Traveling Scholarships, Prof. Percy Ash, Washington, D. C.; Albert G. Skeel and S. G. Gladwin, Cleveland. University Fellowships, Prof. Emil Lorch, Ann Arbor, Mich.; August G. Headman, Philadelphia; John T. Comes, Pittsburg. Publicity and Promotion, Jesse N. Watson, St. Louis; Alfred S. Alschuler, Chicago; John M. Lyle, Toronto. Architectural Annual, Louis C. Newhall, Boston; Charles Mason Remy, Washington, D. C.; L. C. Borie, Philadelphia.

N. Max Dunning, Chicago, Frank C. Baldwin, Detroit, and J. P. Hynes, Toronto, were appointed a committee to confer with the American Institute of Architects and the Society of Beaux Arts Architects with a view of obtaining closer affiliation and coöperation in the educational work of these societies.

The Committee on University Fellowships reported that but few applications had been made for the regular university scholarships, the reason undoubtedly being the lack of adequate general educational preparation. The committee called attention to the recommendations of last year by the committee on education, which urged that all draughtsmen seek to complete the requirements for entrance to college, in evening schools or by such other means as may be available.

The report of the Committee on Education was in substance as follows:

Early in the year the committee decided to send out a letter embodying the following questions:

1. Do you think it practicable to arrange the work of the office so that draughtsmen who wish to do so may spend a certain number of days of each month in pursuit of a definite course of architectural studies?
2. What, in your opinion, would be the best method of organizing courses of study to meet the requirements of the men whose time is largely occupied with office work?
3. If such courses could be organized what branches of study would best supplement office work to give a well rounded training for the practice of architecture?
4. Do you approve of the "Atelier" system and would you be willing to coöperate with the Architectural Club in your city or vicinity (a) in giving instruction to classes which they may organize, or (b) in giving financial aid toward the equipment of an atelier for the study of architectural design and kindred subjects?
5. If the plan of establishing "ateliers" or classes in connection with the architectural clubs of the League proves desirable and practicable, do you think that

periodical competitions organized by the League, possibly in conjunction with the A. I. A., in a manner similar to the Society of Beaux Arts Architects, might accomplish any results not already accomplished by that society toward the development of native taste in architectural forms and decorations.

Summary:—In taking up the questions in detail we find:

1. There is a strong trend of opinion against the practicability of allowing draughtsmen to take time out of regular office hours for the purpose of study.
2. It is the opinion of a large majority that such study must be pursued outside of office hours; also, that such study can never compensate for the lack of regular school training.
3. There is a strong trend of feeling in the profession that those men having the natural gifts of will and talent, which are worth cultivating, will overcome the difficulties standing in the way of educational training. It is also evident from replies received that general culture is considered as a first essential to the educational equipment of the architect and that those special branches of knowledge essential to successful practice of the art may be included under three heads,—Historical, Theoretical and Technical.

4. It is shown that more than 75 per cent of the replies favor the "Atelier" system as at present organized by the Beaux Arts Society. These significant facts appear, however; the "Atelier" system presupposes a goodly degree of educational training and is best adapted to aid in the development of skill in artistic designing among draughtsmen who have already acquired what the schools can give.

5. It would seem, from the replies received, that competitions are considered as a valuable stimulant and aid to progress and that there is a large body of draughtsmen throughout the country to whom the advantages of the Beaux Arts competitions are not available because of inadequate preparation or insularity of location. There is a division of opinion as to the advisability of organizing new or independent competitions by the League. In any case such competition must necessarily appeal to a lower grade of talent and preparation than do the competitions of the Beaux Arts Society.

The report was adopted with the following recommendations:

That the clubs put their energy to the stimulating of an enthusiastic activity among its members, which will banish from the club rooms the commercial spirit and establish a closer relationship between the older and the younger members.

That this can best be accomplished by the "Atelier" system of working, in which the older men give their time and energy to teaching the younger men by criticism, or working shoulder to shoulder with them.

That the education of draughtsmen should include a thorough training in design and in historical and technical knowledge, and to this end establish club "ateliers" and maintain and require attendance upon classes in construction, history of architecture and free-hand drawing from cast and life.

On the question of education which seemed to be the

(Continued on page 217.)

STANDARD ARCHITECTURAL BOOKS—III.

HISTORICAL MATERIAL BY PLACE, PERIOD AND STYLE.

MIDDLE AGES.

NOTWITHSTANDING the prodigious mass of literature which is constantly appearing on the general subject of mediæval art Viollet-le-Duc's great Dictionnaire still leads the field. Not only is it an inexhaustible treasury of information; it is also a strong book by a great writer, who appreciated fully the force of the historic movement which he did so much to make intelligible.

Emile Mâle, Professor of the History of Christian Art, Sorbonne, Paris. *L'Art religieux du XIII^e siècle en France; Étude sur l'iconographie du Moyen Age et sur ses sources d'inspiration. Ouvrage couronné par l'Académie des inscriptions et belles-lettres (Prix Fould).* New ed. Paris, Armand Colin, 1902; 4to (.275 x .22 x .035), 4 + 408 p., 127 ill.; 20 francs. There is danger that the student, in considering mediæval architecture, may treat it as an isolated phenomenon, and not as part of a world movement, into the temperament of which it is difficult for the modern mind to enter. An occasional look into Mâle's book will assist in the prevention of this limitation of sympathy.

William Henry Goodyear, Director of the Art Department of the Brooklyn Institute. *Vertical Curves and other Architectural Refinements in the Gothic Cathedrals and Churches of Northern France and in the Early Byzantine Churches at Constantinople.* Brooklyn Institute of Arts and Sciences Museum—Memoirs of Art and Archaeology; vol. 1, No. 4; pamphlet. In a list of books on Mediæval Architecture we should certainly mention the great accomplishment of Professor Goodyear in his study of Architectural Refinements in mediæval buildings. Of the large amount of matter, however, which he has published, the greater part has appeared in periodicals and not in separate books. This pamphlet will serve to introduce a most important subject. It is hoped that a definite book will appear soon.

Barr Ferree, Member of the Société de l'histoire de France, Paris, author of several works on architecture. *The Chronology of the Cathedral Churches of France.* New York, privately printed from the Architectural Record, 1899; 8vo, pamphlet, 36 p. This little pamphlet forms the fourth part (vol. 3, p. 387) of a series of articles on French Cathedrals published by the author in the Architectural Record. (Vol. 2-8, 1892-1899.) Any chronology of mediæval architecture must be more or less conjectural, but this attempt is, doubtless, as accurate as any, and in its tabulated form is convenient.

Bell's Handbooks to Continental Churches. Six monographs uniform with the English Cathedral series; cloth, 2s. 6d. For description of these books see the English Cathedral series to follow.

George Edmund Street (b. 1824 d. 1881) F. S. A., F. R. I. B. A., Architect of the New Law Court in London. *Brick and Marble in the Middle Ages, Notes of a Tour in the North of Italy.* Second edition, London, John Murray, 1874; 8vo (.23 x .115 x .045), 26 + 415 p., ill., 63 pl., tables; 26 shillings. This is far from being a technical treatise on the architecture of Northern Italy.

It is rather a memoir of many vacation trips in the region; giving the impressions of a great architect upon many matters, not exclusively architectural. Even among more modern special works on the region there is little criticism more valuable.

John Ruskin (b. 1819, d. 1900). *The Stones of Venice.* The usual bibliographical description is omitted. Unless the collector can indulge in one of the fine English editions printed under the author's direction, it does not much matter which of the many reprints he acquires. It is difficult to read Ruskin in these days; the world has outgrown his peculiar type of mind, but the fact remains that of the many able men of his generation, who helped to rescue and preserve the remnants of mediæval art, Ruskin had the keenest appreciation of their finest qualities. His best criticism of mediæval architecture is as fine as any, and some of his best is in the two books mentioned in this list.

John Ruskin. *The Seven Lamps of Architecture.* See note to Ruskin's *Stones of Venice.*

Edmund Sharpe (b. 1809, d. 1877), M. A., F. R. I. B. A., architect and author of several important works on architecture. *The Seven Periods of English Architecture* defined and illustrated. Third edition, London, Spon, 1888; 4to (.25 x .155 x .015), 15 + 37 + 1 p., ill., 22 pl.; 15 shillings. Rickman's "Attempt to discriminate the Styles of English Architecture" has not been included in this list because, good as it is, his classification is superseded by this of Sharpe. The form of Sharpe's book is excellent, a careful description in text, and then a series of beautiful plates giving inside and outside views of one bay each from recognized models of the different styles.

Edmund Sharpe. *A treatise on the Rise and Progress of Decorated Window Tracery in England.* London, Van Voorst, 1849; 8vo (.225 x .195 x .02), 2 vols. in 1, ill., 66 pl. Volume 2 has title: *Decorated Windows, a series of illustrations of the Window Tracery of the Decorated Style of Ecclesiastical Architecture.* The two vols., bound together in half morocco were sold in 1849 for 18s. 6d. Sharpe's *Decorated Window Tracery* is an earlier book than the *Seven Periods* but hardly less important. It has the same extreme clearness of presentation both in the text and in the excellent steel plates.

Francis Bond, M. A., Honorary Associate of the Royal Institute of British Architects. *Gothic Architecture in England; an Analysis of the Origin and Development of English Church Architecture from the Norman Conquest to the Dissolution of the Monasteries.* London, B. T. Batsford, 1905; 4to (.27 x .195 x .06); 2 + 782 p., 1254 ill.; comprising 785 photographs, sketches and measured drawings, and 469 plans, sections, diagrams and moldings; cloth 31 s. 6 d., net.

Bond's *Gothic Architecture* has many interesting characteristics. The merely historical part is brief and in the rather rigid but useful form of a chronology. The greater part of the book is made up of careful discussions of various features, as vaults, choirs, transepts, moldings, tracery, etc. These, with the abundant and competent indexes, give the book the character of a thorough encyclopedia of English Gothic Architecture.

Mrs. Schuyler van Rensselaer, author of *Henry Hob-*

son Richardson and His Works, etc. English Cathedrals; Canterbury, Peterborough, Durham, Salisbury, Lichfield, Lincoln, Ely, Wells, Winchester, Gloucester, York, London, illustrated with 154 drawings by Joseph Pennell, also with plans and diagrams. New York, the Century Co., 1892; 4to (.275 x .19 x .045), 29+395 p., ill.; cloth, \$6.00. This book is frankly the work of an amateur for amateurs, but the English Cathedrals invite this sort of sympathetic treatment, and the extraordinary series of illustrations by Joseph Pennell present the most delightful impression of the picturesqueness of English Gothic which is to be found in any book.

Edward S. Prior, M. A. A History of Gothic Art in England, with illustrations by Gerald C. Horsley, and many plans and diagrams. London, George Bell & Sons, 1900; 4to (.285 x .2 x .04), 14+465 p., ill.; cloth, 31s. 6d., net. An interesting manual with good maps and plans.

Bell's Cathedral Series. English Cathedrals; an Itinerary and Description; compiled by J. G. Gilchrist, A. M., M. D.; revised and edited, with an introduction on Cathedral Architecture by Rev. T. Perkins, M. A., F. R. A. S.; with thirty-three Monographs on the Cathedrals, and eight Monographs on Abbeys and Churches. London, George Bell & Sons, series current; 8vo (.19 x .13 x .01); profusely illustrated, plans, etc.; cloth, 1s. 6d. each. These little monographs of the Bell series are extremely convenient and thorough. If not the entire series a selection is within the reach of any library.

Charles Eliot Norton, Professor Emeritus in the History of Art, Harvard University. Historical Studies of Church Buildings in the Middle Ages; Venice, Siena, Florence. New York, Harper & Bros., 1880; 8vo (.23 x .16 x .04), 6+331 p.; cloth, \$3.00. Professor Norton's book on the three great mediæval churches of Italy, St. Mark's in Venice and the cathedrals of Siena and Florence, is a broad and sympathetic survey of historical conditions which surrounded the conception and construction of these buildings. It is most scholarly and interesting.

George Edmund Street. Some account of Gothic Architecture in Spain. Second ed.; London, John Murray, 1869; 8vo (.24 x .165 x .05), 14+527 p., ill.; 30 shillings. There are several works with abundant photographic illustrations of Spanish architecture, but none of them take the place of this fine English book by an architect greatly esteemed in his day.

RENAISSANCE.

William J. Anderson. The Architecture of the Renaissance in Italy, a general View for use of Students and others. Second ed. revised and enlarged; London, B. T. Batsford, 1898; 8vo (.235 x .16 x .035), 18+1+135 p. with 64 collotypes and other plates and 98 ill.; cloth, 12s. 6d. net. Anderson's Renaissance does for its chosen style and period a work similar to that accomplished by Moore's Gothic Architecture in its sphere. It is a necessity in any library, and in many small collections will do the greater part of the work. With d'Espouy to supplement its illustrations, the period is well covered.

Marie-Désiré-Hector-Jean-Baptiste d'Espouy. Fragments d'Architecture du Moyen Age et de la Renaissance d'après les relevés et restaurations des anciens pensionnaires de l'Académie de France à Rome. Paris, Charles Schmid, without date (1897); small fol. (.45 x .34 x .045),

4+5 p., 100 pl.; 150 francs. The notes on the Fragments d'Architecture Antique of d'Espouy apply very well to the present work. During the second and third years of their pensionnate in Rome the winners of the Grand Prix in architecture are obliged to send studies of mediæval and Renaissance architecture to Paris. From the accumulation of these Professor d'Espouy has made this useful selection.

César-Denis Daly (b. 1811, d. 1894), Editor of the *Revue Générale de l'Architecture*. *Motifs historique d'Architecture et de Sculpture d'Ornement*. First series, *Choix de fragments empruntés à des Monuments français du commencement de la Renaissance à la fin de Louis XVI*. Second series, *Décorations intérieures empruntées à des édifices français du commencement de la Renaissance à la fin de Louis XVI*. Paris, Ducher et Cie., 1870-1880; fol. (.45 x .34 x .045), 2 ser. in 4 vols., ill., 398 pl.; 300 francs, unbound. To cover the period from the end of the Gothic to the beginning of the modern eras in France, there is nothing better than the *Motifs Historiques*. Daly selected the most characteristic and beautiful features of the French Renaissance and the styles of the four Louis, engraved them beautifully and arranged them in such order as to present the chronological development.

Claude Sauvageot, Director of l'Art Pour Tous. *Palais, Châteaux, Hôtels et Maisons de France du XV^e siècle*. Paris, Morel, 1867; small fol. (.395 x .29 x .045), 4 vols., ill., 294 pl.; \$60, unbound. It may be said quite truly that the French Renaissance appears at its best in the minor buildings, which developed during the reigns of the kings from François I to Louis XIII. These buildings are full of charming details which are suggestive in their application to modern work. The best collection is this of Sauvageot.

Charles Thompson Matthews, M. A., architect. *The Renaissance under the Valois, a sketch in French Architectural History*. New York, William T. Comstock, 1893; fol. (.435 x .335 x .03), 23 p., ill.; cloth, \$15. This monograph of Mr. Matthews is by an architect for architects, and quite useful.

Lady Emilia Frances (Strong) Pattison Dilke (b. 1840, d. 1904). *Author of the Renaissance in France, etc. French Architects and Sculptors of the eighteenth century*. London, George Bell & Sons, 1900; 4to (.29 x .2 x .04), 17+217 p., 42 pl.; cloth, 28 shillings net. The works on later French architecture which we recommend have been mainly technical, appealing to the architect and practical designer. We may introduce a book in a lighter historical tone. The eighteenth century should be studied more than it is by American architects. The literature of the subject is large, but for the most part beyond the limits of our present endeavor.

John Belcher, A. R. A., and Mervyn E. Macartney. *Later Renaissance Architecture in England, a series of Examples of the domestic Buildings erected subsequent to the Elizabethan period, with introductory and descriptive text*. London, Batsford; New York, Scribner's, 1901; fol. (.49 x .385 x .045), 2 vols., 153 ill., 170 pl.; \$45 unbound. The English country house found a style well adapted to its necessities in the fine classic type with which the work of Belcher and Macartney is chiefly concerned.

THE ANNUAL CONVENTION OF THE ARCHITECTURAL LEAGUE OF AMERICA.

(Continued from page 214.)

most important subject before the convention, we quote some of the remarks made by the delegates:

LOUIS C. NEWHALL (*Boston*). "The most important thing is that of education. The League is made up of the younger men, and the educational work should be more or less under the direction of the Architectural League of America and the Beaux Arts Society of New York, and perhaps some of the members of the American Institute of Architects. I think the Institute should represent the professional end of it, so that membership in the Institute should be an honor to be conferred for accomplishment. We should have a definite qualification for our membership in the League, and no man should be admitted unless he has had a certain amount of education along certain lines, and then when he has attained that education he will be in a position to take advantage of what the League may be able to give him."

JOHN M. LYLE (*Toronto*). "Speaking as a Beaux Arts man I may say that the difficulty we have to contend with is in the small towns. It seems to me that the Beaux Arts system of education has accomplished something in the way of education, and has by the competitive brought the weak and the strong men together, and it has been found that the strong man will pull the weaker man up with him always, but such an advantage is hard to get in the small town. It works all right in the larger cities. The Beaux Arts Society has been criticised as trying to bring French architecture to America. I do not think the members of the society have that idea at all; the idea is to establish the Beaux Arts System of training here, not the architecture. It seems to me that as Americans we have always had strong personalities, but never any great number of men working together in the same ideas. If you have too much individuality you are going to have pandemonium, and I think the League should put itself on record as working along some certain lines."

EMIL LORCH (*Ann Arbor*). "There is no doubt that when it comes to teaching, the Beaux Arts Society is doing it the best of any society in the world, but is that the way we are going to get American architecture? In other words, if we take the architecture of Greece and the architecture of Rome, will we have out of it an American architecture in time? I say we cannot. We want to foster something that is really our own, and we must not forget that we, like the old Gothic architects, stand on the brink of an era."

HERMAN V. VON HOLST (*Chicago*). "I am very vitally interested in education as it touches the nature of architecture. I think well of the Beaux Arts system, where all the big men and the little men get together and where it is the practice of the big men to uplift the smaller minds; that to me is the essential process of education among human beings, and I detest any reference to the establishment of any system of education wherein such a thing as examinations occurs; it suggests a thing that is un-American. I do not like any suggestion of a system of education that will put out a sort of examination that men must cram for before they can accomplish anything, and so I welcome that little hint as to the method of the Beaux Arts Society, and I am heartily in favor of trying

to do something, as a member of this League, to systematize the educational efforts, that a man's ability may be recognized, and a mark put upon him—a certificate, if you like—to show what he is capable of. Of course we all understand that we must have some foundation of education, that a man must know something of the higher mathematics, but with all this, I say let us be careful not to establish a system of examination that will make a man purely mechanical as an architect.

"Architecture, according to my idea is the most difficult branch of work that a human being can attempt, because all work, all architecture, if it is perfect, must be a perfect organism, which is a perfect unit. The trouble now with our draughtsmen is that we have to keep them shut up in stuffy offices, possibly, working by electric light all day, and they do not get out into the open, into the parks, etc., except, possibly, on Saturday or Sunday, and with these constant surroundings where can they get the true inspiration for their work? I think that the local clubs should, in the education which they may establish, try to give the members, and cultivate in the members a love of the out-door nature, and a healthy feeling for it, and keep their own individuality alive by joining the communities in trying to solve the problems for better and more beautiful cities, which are the problems that all important cities in this country are setting themselves to-day."

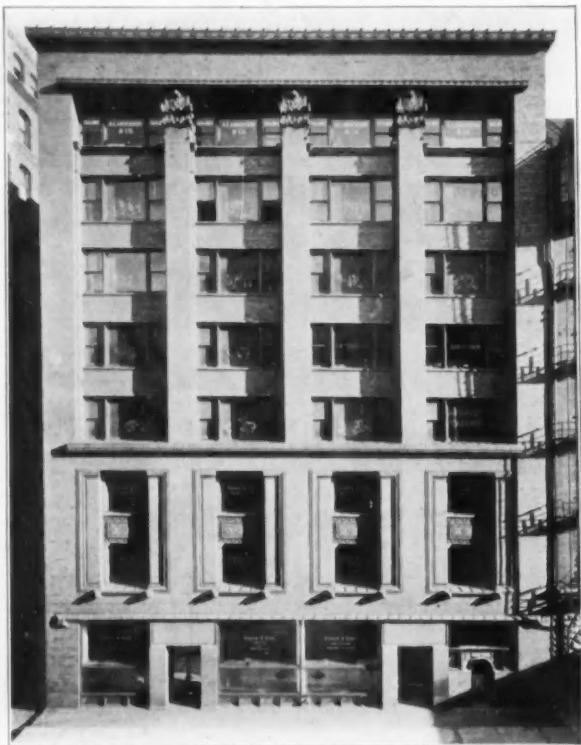
J. P. HYNES (*Toronto*). "You started out to discuss the responsibility of this organization to education, and that means we must fasten it down to some responsibility of the clubs. Up to the present we have recognized no foundation on which to build professional knowledge; some suggest a certain amount of office work, others contact with architectural clubs, and I think that everyone will recognize that we will not get it in this way. It is the first duty of the architectural body to see that a systematic education is laid at the start, and then they may possibly be able to solve all the other questions. In that respect I feel that this League and the clubs that compose it have this very first duty to perform, but I contend that it is not the duty of these clubs to supply an architectural education for the community. The clubs should take up some part of the Beaux Arts Society training after they have a scientific and historical knowledge on which to work. If we are to establish a national style we must start on some educational basis first."

PROF. NEWTON A. WELLS (*Urbana*). "The schools have their field of endeavor, they must be technical and they must give a general education; there is the high school, the college, the university, and the technical school, which teaches the higher mathematics and also teaches the rudiments of design, but all that is educational work that should precede the work of the Beaux Arts Society. There is, however, another class of men, located in our various clubs, who have not yet risen to the point, perhaps, where they are competent to enter the Beaux Arts competitions. What we want to get at is what to do and how best to do it, to pull along with the Beaux Art Society and not to tread on its ground, and I think we should keep in mind that the League is made up of young men, beginners, and that we have the Institute always to look forward to; that we should not rival it in its branch of the work, but willingly take our place in the world's work and do what we can."

Editorial Comment and Miscellany

THE GREAT DAILIES ARE LENDING A HAND.

A NET loss from business failures in the United States of \$252,000,000 in a year would create a panic. A decrease in the value of all of the agricultural products of the country for a year amounting to \$252,000,000 would lessen the purchasing power of the people and handicap all industry and commerce. Carelessness which would result in the loss of a quarter of a billion dollars from the United States treasury would be a crime inconceivable. But the losses by fire in the United States during the past four years have averaged \$252,000,000 each twelve months, and



CHAPIN & GORE BUILDING, CHICAGO.
Richard Schmidt, Architect.

the daily record of fires continues without receiving special consideration, except as there may be some startling features that attract passing interest. A great conflagration startles the people and rouses them to some inquiry as to causes and preventives. Public sentiment in the mass is stirred and legislative bodies respond with statutes and ordinances of salutary intent. But the fires still continue. There is little diminution of the monthly record of loss. The minor fires are as numerous as ever and the greater losses come with startling regularity. Fifty per cent of these fires are due to carelessness. The Americans, showing the virtue of vigilance as a mass, are not heeding the warning as individuals.

The American insurance underwriters have repeatedly sought to avert this unnecessary waste. The National



COMMERCIAL BLOCK, NEWBURY STREET AND MASSACHUSETTS AVE., BOSTON.
Bowditch & Stratton, Architects.

Fire Protection Association, originally organized by insurance interests, is an active force in the interest of fire prevention, investigating important fires and giving publicity to facts for educational and warning purposes. With the continued increase in annual fire loss, the underwriters have foreseen the time when insurance rates would rise and when, in fact, insurance might become impossible. That is not an exaggerated fear. The San Francisco calamity forced several insurance companies out of business. In the last fifty years 1000 insurance companies in the United States, or more than three times



COMMERCIAL BLOCK, HANOVER AND UNION STREETS, BOSTON.
Wheelwright & Haven, Architects.

the number of existing companies, have been forced to withdraw. In the last ten-year period the insurance business shows an underwriting loss of 4½ per cent of the premiums received. How long will capital be attracted to the insurance business, with its constantly increasing hazard and loss? The American underwriters have made no prediction, but much significance is attached to the attitude of the foreign companies, who in the past have carried a large amount of American insurance. From time to time they have been narrowing the limits of their risks. Now it is said that European companies are becoming so alarmed over the increasing losses in the United States that they are seriously contemplating withdrawal from this country. A recent semi-official statement from these quarters is attracting attention among property owners. Investigation of the facts as shown by the records indicates that the foreign insurance interests are not unnecessarily alarmed. The loss in the San Francisco conflagration was \$350,000,000. If a fire in the congested portion of New York city should cover an area as large as that of the San Francisco fire, it is estimated that every insurance company doing business in the



HUDSON TERMINAL BUILDINGS, NEW YORK.

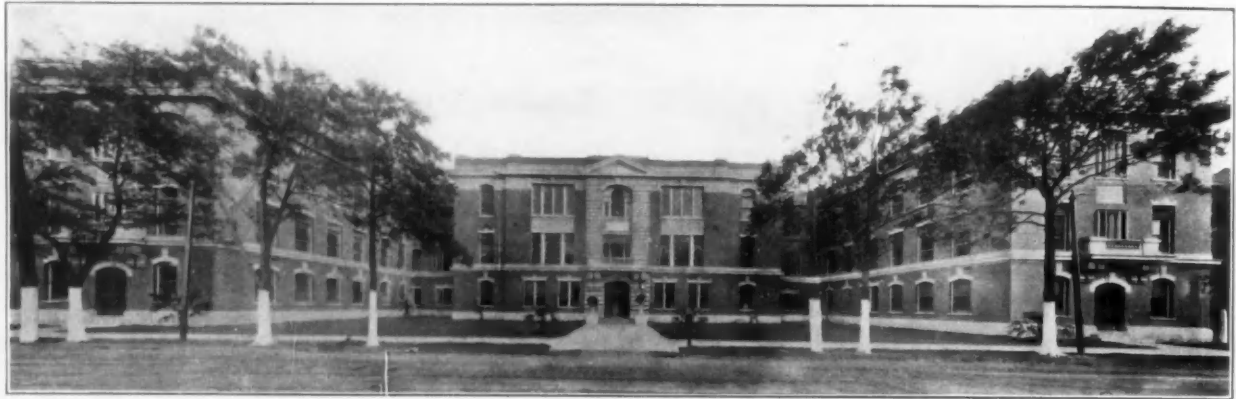
Clinton & Russell, Architects.

Upper walls of architectural terra cotta, gray interspersed with reddish hue.
Atlantic Terra Cotta Co., Makers.CORRIDOR IN THE HUDSON TERMINAL BUILDINGS.
Showing use of Guastavino glazed tile for ceiling.

country would be put out of business. But is such a conflagration impossible? Is New York city free from danger spots, or is its fire fighting apparatus equal to any test?

What are the conditions that exist in the average American city? Chelsea was swept by fire because for years after it had been warned of the danger of its "rag district" it tolerated the tinder box which, once fired, created a blaze which no apparatus could quench. Unkempt dumps, piles of tinder fire traps exist in other cities and invite the conflagration fiend, but people refuse to recognize the danger. The lack of individual responsibility is even more marked than is the absence of thoughtful and careful public opinion. The cigarette butt is still snapped away without regard to where it may light. The match is thrown down carelessly or its snapping head allowed to lie untouched until some bootheel may crush and ignite it. Men still hunt gas leaks with matches, women pour oil on fires to brighten the flame, money is wasted in cheap construction under the pretence of saving it. In scores of ways individual carelessness and recklessness aid the fire fiend.

Conservation is the problem of the future. Man's resources are exhaustible. The discovery of new resources and new forces is not endless. Man must learn to save and make the most of what he has. Waste must be



TOURO INFIRMARY, NEW ORLEANS, LA. Favrot & Livandias, Architects.
Brick made by Hydraulic Press Brick Co., St. Louis.

stopped. It is the problem of life. To save health and strength for the later years of activity; to save money and goods for the time of famine; to save forests against the time of vanishing timber supply. Waste is the evil of the day. Conservation is the virtue of the future. The preventable waste of 50 per cent of \$252,000,000 a year is a national folly. It is worse; it is a national disgrace.—*Editorial from the Boston Herald.*

BUILDING OPERATIONS FOR AUGUST.

THERE is a loss of 10 per cent in the aggregate building operations of forty-two leading cities throughout the country, as reported by the *American Contractor*, New York, compared with August, 1907; the previous months of the year all presented a loss except July, as follows: January, 44 per cent; February, 33 per cent; March, 37 per cent; April, 33 per cent; May, 19 per cent; June, 15 per cent. July showed an increase of $3\frac{1}{2}$ per cent. In the report for August thirteen cities scored a gain from 1 to 224 per cent and twenty-nine show a loss from 2 to 89 per cent. The principal gains are: Chicago, 25 per cent; Denver, 24; Indianapolis, 33; Louisville, 27; Syracuse, 25; Salt Lake City, 128; San Antonio, 224.

IN GENERAL.

Brooklyn's new Academy of Music, which has cost \$1,300,000, was opened to the public on September 16; six thousand tickets having been issued for the occasion.

The Brotherhood of Locomotive Engineers is to build a new home for itself and

office building in Cleveland that will represent a total outlay of a million dollars.

The new Municipal Courts Building to be erected near the City Hall of St. Louis will cost about \$2,000,000. Isaac S. Taylor is the architect.

The plans of architects Wood, Donn & Deming for a large laboratory for the National Bureau of Standards in Washington are being estimated on.

Estimates are being submitted for the new Public Library, St. Louis, Cass Gilbert, architect. The cost of the building, not including furnishings, will be about a million and a quarter.

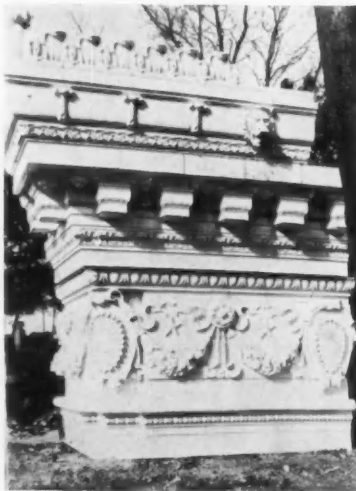
York & Sawyer, as architects for John D. Rockefeller, have filed plans in New York for the main hospital building and isolation annex of the Rockefeller Institute for Medical Research.

Estimates having been obtained upon the completed plans for the new Grand Central Station, New York, contracts for the superstructure of the north wing are being signed. The total cost will reach \$20,000,000.

The Chicago & Northwestern Railway is clearing four large blocks in Chicago for its magnificent new \$20,000,000 station, which is to be capable of moving 250,000 passengers every twenty-four hours.

The big Pullman shops near Chicago, it is reported are to be razed and rebuilt upon an enormous scale for the manufacture of steel palace cars. Sixty acres are to be added to the area of the Company's shops and this involves the practical remaking of the town.

The disastrous fires re-



CORNICE, CORN EXCHANGE BANK, CHICAGO.
Shepley, Rutan & Coolidge, Architects.
Made by American Terra Cotta and Ceramic Co.



LIVE STOCK PAVILION, INDIANAPOLIS, IND.
Rubush & Hunter, Architects.
Roofed with red fire-flashed tile, made by Ludowici-Celadon Co.